

THE
PRINCIPLES AND PRACTICE
OF
MIDWIFERY.

Ut potero explicabo, nec tamen ut Pythius Apollo, certa
ut sint & fixa quæ dixerò, sed ut homunculus probabilia
conjectura sequens.

Cic. Tusc. lib. i,

M. I. D. W. I. F. R. Y.

THE

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PRINCIPLES AND PRACTICE
OF
M I D W I F E R Y.

IN WHICH

Are comprized and methodically arranged under the
Four General Heads, of

GENERATION, || DELIVERY, AND
GESTATION, || RECOVERY,

A L L

The Anatomical Facts, Physiological Reasonings, Patho-
logical Observations, and Practical Precepts, necessary to
constitute the fullest and most complete

SYSTEM OF MIDWIFERY.

BY EDWARD FOSTER, M.D.

Late Teacher of Midwifery in the City of Dublin.

Completed and Corrected by JAMES SIMS, M.D.

L O N D O N,

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ADVERTISEMENT.

THE Author thinks it necessary to acquaint the Reader, that the following Principles of Midwifery have been compiled for, and used as, the Heads of Lectures, by him, for several years, in a neighbouring kingdom; in which time, he has had very ample opportunities of seeing almost every practical doctrine therein laid down, repeatedly confirmed by the most useful of all teachers, Experience: with confidence, therefore, he can recommend that most important part of the work, not only to the Student, but to the Practitioner, as what has borne the test of experiment, and thence likely to endure the tooth of time. But as to such theories as were necessary to be introduced, though he has adopted, or advanced them, as the most rational, yet he is by no means so far the slave of opinion as to be either surpris'd, or concerned, at seeing them controverted, or refuted.

ADVERTISEMENT.

He is also sensible of an inconvenience attending the aphoristic manner he has adopted, which precludes the introduction of diffuse argument, or a splendid style: but as the former is too liable to swell without substance, so the latter is too apt to shine without heat: as he professes, therefore, to have drawn but the out-lines of the picture, the reader will not expect to find it accompanied by the Graces.—In so small a space there being scarce room for essentials, none could be spared for drapery, or ornament; nor will the deficiency, it is hoped, be esteemed material, as the Practitioner cannot need them, and the Student may have an opportunity of the fullest explanation.

P R E F A C E

BY THE EDITOR.

THE following Work was undertaken partly at my request by the late ingenious and learned Dr. Edward Foster. I had long seen, and lamented, that the writers on Midwifery had not enjoyed a sufficiently extensive Medical education, and that therefore their works were mostly inaccurate and deficient in method. This may, in part, be owing to so many gentlemen practising this branch, who, having never methodically studied medicine, do not see the

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necessity of that study to qualify them for the practice, and much more for the teaching of this art. I believe it may nevertheless be asserted, that in order perfectly to understand, or to write well upon any branch of medicine, a knowledge of the whole science is requisite. It is on this account, that many Surgical writers have been so greatly deficient, and that we have not as yet had one complete System of Midwifery. I do not mean here to derogate from the merits of Smellie, La Motte, Mauriceau, or other good obstetrical writers; but surely no one who has been accustomed to read Boerhaave, Sauvage, Guabius, Haller, or other systems of the different branches of medicine, will imagine
that

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that we have any regular System of Midwifery. Neither do I mean to defend Systems as they have been usually written, filled with hypotheses and conjecture ; I only wish to inculcate that it is necessary for the use of students, and even practitioners, to reduce the facts appertaining to any one branch of science to a methodical order.

My late worthy friend appeared to me excellently qualified for this task. He possessed an uncommonly strong understanding, together with great quickness and acuteness of judgment. His education, as a physician, had been most extensive and methodical, during which he had industriously

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ously applied himself to this branch of the Science. He had afterwards practised Midwifery extensively in the city of Dublin, and had also taught it there, for many years, with great eclat to a numerous class of students. The work was intended to be, like Boerhaave's Aphorisms, a foundation, or text-book, to his future lectures, yet, at the same time to be plain and intelligible to those who might not have the advantage of hearing his own comment.

Unfortunately for his friends and the world, at a time when he must have reaped the fruits of his genius and industry, when he must have risen to the summit of his profession
in

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in emolument as well as fame and knowlege, he was cut off by a fever, in the prime of life, before he had finished or revised the work.

To me then this task devolved, as I could not allow the labours of my much lamented friend to perish with him. No one can be more sensible than myself, what the medical world has lost by his not performing it himself, and how inadequate I am to the undertaking. It is now nearly twenty years since Midwifery made a part of my medical education, during which time I have carefully avoided the practice of it. Let then the inaccuracies of the book be attributed to me, as I am convinced
they

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they would not have escaped his penetrating genius, whilst all the merit of it must ever remain entirely his own.

To his memory this just tribute of a deeply afflicted heart is dedicated, by his surviving friend,

JAMES SIMS.

THE
PRINCIPLES AND PRACTICE
OF
MIDWIFERY.

I. **M**IDWIFERY is that art, or science,
which teaches the aid necessary
to females of the human species, and their
young, in propagation.

II. Midwifery is divided into four
parts :

The first treats of Generation.

The second of Gestation.

The third of Delivery.

The fourth of Recovery.

PART I.

GENERATION.

III. The first part of midwifery treats
of Generation, or of the begetting of the
B young ;

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young ; and is divided into an Anatomical, a Physiological, and a Therapeutic part.

ANATOMICAL PART OF GENERATION.

IV. The Anatomical part of generation, is that which teaches so much of the female structure, in the unimpregnated state, as is necessary to the knowledge of the subject ; by demonstrating the pelvis, the organs of generation, and parts adjacent.

P E L V I S.

V. The Pelvis, so called from its resemblance to a basin, is an assemblage of bones, constituting the lower part of the trunk of the skeleton, and forming an irregular, cylindrical cavity, by the conjunction of the os sacrum, os coccygis, and ossa innominata.

VI. The Os Sacrum, so called from its being offered in sacrifice by the ancients, is a continuation of the spine, consisting of five vertebræ, called false, from their want of motion upon each other. It is of a triangular

angular shape ; broad above, and narrow below ; convex and unequal, with hollows and processes behind ; concave, and smooth before ; with a projection or jetting in of its upper vertebræ ; rough, and scabrous, on its sloping edges of each side ; and smooth at its ends above and below. It has four holes on each side of the bodies of the vertebræ ; where an obscure line marks their original cartilaginous union. The canal between the bodies and processes of the vertebræ of this bone, for the cauda equina, is triangular, and becomes smaller as it descends, opening backwards into a slit. The substance of this bone is very spongy, with thin external plates. It is articulated above to the lowest of the lumbar vertebræ, forming an obtuse angle, with the power of considerable motion : laterally it is joined to the ossa innominata, by immoveable synchondrosis ; and below it articulates with the os coccygis, allowing it some motion, backwards and forwards.

VII. The Os Coccygis, or Cuculi, so called from its resemblance to a cuckoo's

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beak,

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beak, being of a pyramidal figure, convex behind, and concave before, forms the extremity of the spine; and consists of four small bones ending in a point: each of these in youth hath some small motion with its adjoining bones, but in elderly subjects, they are generally found united, without motion; and often in advanced life, all motion is lost between it and the os sacrum.

VIII. The *Ossa Innominata*, or bones without a name, are two in number, one situated on each side of the os sacrum, and forming a curve, so as to meet before. They are large, strong, and irregular; and each of them being, in infancy, separated by cartilage, into three distinct bones, though this be soon obliterated, they are still divided into ilium, ischium, and pubis.

IX. The *Os Ilium*, so called from its supporting the parts called by the ancients *ilia*, is situated highest of the three; and reaches so far down as one third of the great cavity, into which the head of the thigh bone is received. It is a pretty large,
broad,

broad, flat bone, and rather thin, especially in the middle. It is irregularly convex on the outside, or dorsum, and more considerably concave on the inside, or costa. The upper edge is covered with cartilage, and is called its spine, and as it projects, both before and behind, into two little knobs, these get the names of anterior and posterior, superior and inferior, spinal processes. The os ilium is much narrower below than above; and on the outside forms a part of the acetabulum; whilst on the inside it forms a small ridge, which, joining with the like on the pubis, and being continued in a line, along the shoulders of the sacrum, constitutes the brim of the pelvis, which divides it from the abdomen. The os ilium is joined to the sacrum by an immoveable synchondrosis, (VI.) of a large unequal surface, covered with thin cartilage.

X. The Os ischium, so called from its great strength, is of a very irregular figure, and is situated the lowest of the three bones. Its upper bulbous part or body rises so as to form near one half of the acetabulum;

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and its small leg rises to about the same height, on the opposite side of the large hole, called foramen thyroides. From the upper thick part of this bone projects backwards, and transversely, a sharp spinous process. The lower part of it terminates in a thick, round knob, or tuberosity, covered on one part with a thickening of the tendons, like cartilage, and upon the other, the body rests in sitting.

XI. The Os Pubis, so called from its supporting the pudenda, is the least, and foremost of the three parts of the os innominatum. The thick body of this bone, joining the former two (IX. X.), makes the acetabulum; from which running transversely, and becoming smaller, it meets its fellow of the other side, where it again becomes larger, the surface of its end being scabrous. It sends off here a small leg, forming an angle, to meet that of the os ischium: and the space, between it, and the opposite leg of the same bone, is called the arch of the pubis. From the inner and upper edge, arises a thin ridge, which assists in forming the brim of the pelvis (IX.)

(IX.) And the ossa pubis are articulated together before, by a broad, strong, ligamentous cartilage, which cannot, in a sound state, allow the least motion, and is called the symphysis of the pubis.

XII. These bones, thus formed and united, constitute the pelvis, whose cavity is an irregular cylinder, widest in the middle. It has two great apertures, one above, formed by the brim; and one below, formed by the lowest edges of the sacrum, coccyx, ischia, and pubes. The upper aperture, which gives passage to the distending and contracting uterus, and bladder, and their contents, and to the rectum, and blood vessels, &c. is of an elliptic form, with its greatest dimension, which measures from four and an half to five and an half inches, from side to side, or from one ilium to the other; and its smallest dimension, measuring from three inches and an half to four and an half, from the jetting in of the sacrum, to the symphysis of the pubis. The lower aperture, which, in the natural state, is mostly covered, or filled up, with ligaments,

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muscles, fat, &c. and gives passage to the urethra, vagina, and rectum, with their contents, is of an irregular circular form, measuring nearly the same from before backwards, as it does from side to side, viz. from three inches and a half, to four and a half: but when the os coccygis is forced backwards to a straighter line with the sacrum, then this aperture, becoming elliptic, will measure about one inch more, from coccyx to pubis, than from side to side. The pelvis, when the coccyx is extended, measures near six inches in depth at the sacrum, four at the sides, and two at the symphysis of the pubis: and a straight line, drawn through the centre of both apertures, constitutes its axis; which, when the body is erect, runs obliquely backwards, and downwards; so that to reduce it to a perpendicular with the horizon, the body must recline considerably backwards.

XIII. The female pelvis differs from that of the male:

1. In the dimensions of its cavity, being larger.

2. In

2. In its shape; being peculiarly fitted for the support of the gravid womb, and for the passage of the fœtus.

XIV. When this cavity (XII.) is defective in any of its dimensions, it is said to be an ill conformed, or distorted pelvis, and this may happen—

1. In a disproportion, of all its dimensions to those of the body.

2. In the inward flexure, or projection, of the ischia or their spinous processes (X.)

3. In the straightness, or inward flexure of the ossa pubis (XI.)

4. In the anchylosis of the os coccyx (VI. VII.) with the lower end of the os sacrum; and in their too great projection inwards, or tuberosity.

5. In the straightness, inward convexity, or tuberosity of the os sacrum, instead of concavity (VI.)

6. In the inward projection of the upper vertebræ of the os sacrum, or lower vertebræ of the loins.

ORGANS OF GENERATION.

XV. The Organs of Generation are those parts, which are peculiarly constructed for the purposes of generating, and producing the young: and are divided into external, and internal.

XVI. The external organs of generation are such of these parts, as are demonstrable without dissection, and are mons veneris, labia magna, clitoris, nymphæ, os externum, hymen or carunculæ myrtiformes.

XVII. The Mons Veneris is a pretty large, circular, soft eminence, or tumour, situated at the bottom of the belly, between the groins, and over the symphysis of the pubis, raised by a thickening of the adipose membrane, and covered after puberty with strong short hairs.

XVIII. The Labia Magna, or Externa, are two in number, they arise full, and prominent, from the mons veneris, by a folding of the skin, interlined with adipose membrane; and running parallel, downwards

wards and backwards, become small, and thin, where they unite, which is called their commissure or fourchette. On their inward sides, which are smooth, and red, they are beset with small glands, and on their outer, with hairs. They serve to direct the discharges from the bladder, womb, and vagina; and to cover the passages into these organs.

XIX. The Clitoris is a small, spongy, cellular, or cavernous body, situated between the labia magna, just upon the symphysis of the pubis, consisting of a glans, and trunk externally, which divides into two branches internally, called crura, that run along the legs of the pubes, and ischia. It is capable of being made turgid, by gentle irritation, in the living subject, and by inflation in the dead; and is surrounded with a thin loose folding of the skin, called prepuce. It has a ligamentum suspensorium, and small bundles of muscular fibres, similar to those of the male penis, and seems to be the prime organ of sensation in coition. It is generally found large, in proportion to the body, at the birth;

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birth ; and sometimes so large, as to be mistaken for a penis, there have also been instances of its becoming remarkably great at puberty.

XX. The Nymphæ, or labia interna, are two, thin, prominent folds of the skin, within the labia magna, lying parallel and close to them ; very various in breadth, but generally reaching in length, from the prepuce of the clitoris, to near the fourchette. They are very smooth externally, and very spongy and glandular internally, and seem to aid both the labia magna, and clitoris, in their uses.

XXI. The Os Externum is that opening, orifice, fossa, sulcus, or sinus, which lead between the labia magna, and between the nymphæ, into the cavity of the vagina. It is situated at the fore part of the lower aperture of the pelvis, between the small legs of the pubes and ischia. It is small before coition, which enlarges it, but it becomes still larger from childbearing. It is surrounded by some muscular fibres, like a sphincter, which, in most subjects, have more or less of a power to

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contract it. In some rare instances, it is not to be found, being preternaturally closed up by a cohesion of the labia, or sides of the vagina.

XXII. The Hymen is a thin, narrow, slender membrane, which totally, or partly, surrounds the inside of the os externum, reducing its diameter to a very small dimension; but easily giving way, by laceration, to the penis, in the first coition; when it leaves in its stead, small fleshy excrescences, called, from their supposed resemblance to myrtle buds, *carunculæ myrtiformes*. This membrane is sometimes preternaturally thick, and strong; at others it sends a process or *frænum* across the external orifice, from the fourchette, to the symphysis of the pubis; and there are frequent instances of its covering the whole orifice. As the hymen is never found in brutes, it seems designed for a moral purpose.

XXIII. The internal organs of generation are such of these parts as, being deeply situated, are demonstrable only by dissection; and are, the vagina; the uterus,

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rus, with its ligaments ; the Fallopian tubes, with their fimbriæ ; and the ovaria.

XXIV. The Vagina, or sheath, is a pretty thick, strong, spongy, extremely elastic, cylindrical membrane, forming a cavity, duct, or canal, that leads directly from the os externum, to the mouth of the womb. It is from three to six inches in length ; and from one to two in breadth, in the virgin state ; but considerably widened, and somewhat shortened, by coition, and childbearing. It is situated between the rectum and urethra, with part of the bladder ; and running from the os externum, obliquely upwards and backwards, intersects the axis of the pelvis (XII.) and forms an obtuse angle with the uterus, around whose neck, its superior end is obliquely inserted. It is surrounded, externally, with a pretty thick coat of cellular membrane, which connects it to the contiguous parts ; within this lies a spongy, cellular web of blood-vessels and muscular fibres, communicating with the clitoris, which is called the retiform plexus. The substance of the
vagina

vagina is chiefly composed of a most intricate intertexture of minute vessels, nerves, and fibres, of a compact, spongy, elastic consistence, and of a whitish colour, and it is lined with a fine, thin, villous membrane, contracted into two regular rows of transverse rugæ, one anterior, the other posterior, divided at the sides by a rapha, or future, and intersected through their middle, by a longitudinal line, before, and behind. This membrane being distended by coition, but more especially by child-birth, hath its rugæ almost obliterated in women who have had many children. The vagina serves as a sheath to the penis in coition, and to conduct all necessary matters into and out of the womb. It is sometimes found preternaturally narrow, or short, and at others imperforated, and sometimes double, or divided longitudinally by a septum.

XXV. The Uterus, or Womb, is a hollow pyriform body, loosely situated in the pelvis, between the bladder and rectum, and hanging into the vagina, to which

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which it is connected. From this situation it is subject to vary its position a little, either upwards, or downwards, backwards, forwards, or sideways, as these organs are distended, or contracted. Its external surface is smooth, and it is pretty firm or solid to the touch. It is of an oblong triangular shape, or like a long-necked pear flattened, the depressed sides being to the sacrum and pubis, and the edges to each ilium, with the broadest end, measuring about two inches, upwards, and the smallest end, measuring about one inch, downwards. It is about one inch in thickness, and three in length, and is divided into the fundus, of about one inch and a quarter; the cervix, or collum, of near an inch and three quarters; and the os, of less than a quarter, being that part which projects within the vagina, and consists of two transverse, smooth, prominent labia, and a small fissure, or opening between them, commonly called the os tincæ, os internum, or os uteri. The womb is hollow within, forming two cavities, one of the collum,
the

the other of the fundus. The first leads from the os uteri, in a straight line, to the second, and is a small narrow canal, of about one inch in length. The second is a continuation of the first, spreading into a triangular shape, with its base to the fundus, and its angles corresponding to those of the uterus. From the two superior angles of this cavity arise two very small holes, scarcely admitting a hog's bristle, which pass through the substance of the womb, at its angles, and form the entrance of the Fallopian tubes into the womb. A strait line, drawn through the centres of the fundus, and os uteri, constitutes its axis. The womb has its external covering from a duplicature, or folding of the peritonæum, which is connected to it, by a cellular membrane. Beneath this, its substance, near half an inch in thickness, is composed, like that of the vagina, of a most intricate intertexture of vessels, nerves, and fibres, but rather more muscular, though its fibres, surrounding it irregularly, in all directions, leave no trace of a distinct muscle.

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It is lined internally, like the vagina, with a fine, villous membrane, smooth on the cavity of the fundus, where it is pierced by a number of very small holes, and rugous on the cavity of the collum, where a number of small glands open. The uterus serves to evacuate the menses, and to receive, contain, nourish, and expel the foetus. It is sometimes found double, or there are two distinct uteri, instead of one, and in rarer instances it is totally wanting.

XXVI. The Ligaments of the womb are four, two broad, and two round. The two broad ligaments are formed by a duplicature of the peritonæum, which surrounds the uterus, and connects it to the ilia, on each side. The two round ligaments are formed by a plexus of blood-vessels, joining near the fundus uteri, at each angle, and being covered by the peritonæum, run down along the womb, until they pass through the rings of the abdominal muscles, and are dispersed in small branches upon the groins.

XXVII. The Fallopian Tubes are two thin muscular membranes, each forming
a nar-

a narrow conical duct, or canal, that leads from the upper angle of the uterus, on each side, and runs for the space of a few inches, in a curved, vermiform, or tortuous line, terminating in an open mouth, surrounded with a number of small, fleshy excrescences, or fibrils, called *fimbriæ*, or *morfus diaboli*. The tubes are contained within the broad ligaments, and are lined with a thin, fine, villous membrane, contracted into *rugæ*, and generally found covered with soft *mucus*. They serve to convey whatsoever is necessary to pass between the uterus and ovaria.

XXVIII. The Ovaria are two, flat, oval bodies, about an inch and an half in length, an inch in breadth, and a quarter of an inch in thickness, situated one on each side of the fundus uteri, and connected to it, by a short ligament. They are suspended in a fold of the peritoneum, just beneath the *fimbriæ* of the tubes, and are composed of a compact spongy substance, interspersed with a various number of small round vesicles, of different

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sizes, from that of a pin's head, to a pea; which are filled with a clear coagulable lymph, and stuck in small cups, or calices, like nuts in their husks. These vesicles called ova or eggs, adhering to the ovaria, by their respective peduncles, or footstalks, protuberate upon them, and at length separating from them, leave scars, or cicatrices behind, so that the ovaria of old women are much reduced in their size, are variously corrugated, and scarred, and are found without ova. The ovaria serve to produce whatsoever it is that the female contributes towards the generation of the foetus.

XXIX. The organs of generation are plentifully supplied with arteries and veins, from the hypogastrics and spermatics. The latter are principally distributed upon the ovaria, and Fallopian tubes; and the former upon the uterus and vagina. The arteries of the womb are small in proportion to the veins; they are much interwoven, frequently anastomose, and generally run in a serpentine or curling course, with numerous branches, sinking through
through

through the substance of the womb, and opening into its cavity. The veins are large, in proportion to their arteries: they want valves, and also frequently anastomose, not only with each other, but with the hæmorrhoidal veins. The organs of generation have their nerves also in great numbers, from the lumbares, sacri, and sympathetici maximi; and send their lymphatics along the coats, which they receive from the peritoneum.

PARTS ADJACENT TO THE ORGANS OF GENERATION.

XXX. The parts, immediately contiguous to the organs of generation, are, the urethra, the urinary bladder, the perinæum, the anus, and the rectum.

XXXI. The Urethra is that duct, or canal, which gives passage to the urine, from the bladder. Its orifice opens below the clitoris, between the nymphæ, at the under edge of the symphysis of the pubes, from whence it runs, nearly in a strait line, for about an inch and an half, until

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it enters the bladder, through a sphincter muscle.

XXXII. The Urinary Bladder is that membranous and muscular bag, which receives, collects, and expels the urine. It is situated behind the upper edge of the symphysis of the pubis, from whence it extends into the lower part of the abdomen, and rests upon the vagina and uterus.

XXXIII. The Perinæum is that external space between the fourchette, and anus, which measures a little more than an inch.

XXXIV. The Anus is the orifice of the rectum, contracted into rugæ, by a sphincter muscle. It opens nearly in the centre of the lower aperture of the pelvis.

XXXV. The rectum, or strait gut, is that large intestine, which conveys the excrement out of the body by the anus, from which it runs, in a straight line, behind the vagina, and uterus, through the brim of the pelvis.

THE PHYSIOLOGICAL PART OF
GENERATION.

XXXVI. The physiological part of generation is that which teaches its different doctrines, or theories, by explaining the the operations of its organs towards procreation ; and these are natural or preternatural.

XXXVII. The natural operations of the organs of generation towards procreation, are menstruation, coition, and conception.

M E N S T R U A T I O N .

XXXVIII. Menstruation ; the Menstrual Flux, or Purgation ; Menfes, or Catamenia ; so called, from its monthly recurrence, is a periodical discharge of red blood, from the mouths of the uterine vessels, and as it necessarily precedes the fruit of the womb, it has, from analogy, received the name of flowers.

XXXIX. Menstruation commences at the age of puberty, which is varied by
C 4 climate,

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climate, temperament, constitution, and manner of life, from eleven to twenty years of age; and ceases when the body becomes effete, or disabled from generation, which happens, according to the same circumstances, from thirty to fifty years of age. There are however instances of earlier and later menstruation.

XL. Menstruation disappears during gestation, and generally during suckling; but in the first case, there sometimes appears a kind of effort towards it, by a periodical discharge of red blood, or of whitish mucus from the vagina, which may therefore be called preternatural or false menstruation (CCXXXVI.); and in the latter, either the real menses or this white discharge sometimes occur.

XLI. The first terms of menstruation are generally scanty, and preceded or accompanied by pains through the loins, hypogastric region, and head; with lassitude, horripilation, heat, and thirst. The last are apt to be irregular and profuse; and all are attended with a more quick, small, and hard pulse than is usual at other times,

times, and with a peculiar foetor of the breath.

XLII. The duration of a single term is according to the circumstances of climate, or season, constitution, manner of life, and habit, from two to seven or eight days; and the interval between two terms is according to the same circumstances, from a fortnight to six weeks, or sometimes longer, but most commonly and regularly one lunar month.

XLIII. The quantity of this discharge may be estimated at from three to twelve ounces, according to the circumstances last mentioned; and the quality is precisely the same of that mass of blood from which it issues.

XLIV. It has been in vain attempted to deduce menstruation from the following causes.

1. From the influence of the moon, since there is not a single day of the month, whether the moon is in its increase or decrease, at the full or change, in which thousands of women cannot be found in every stage of menstruation.

2. From

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2. From ferments excited in the humours of the womb—since no such ferments can be proved, nor even with reason supposed.

3. From an excrescence of the arteries, that open into the womb for the purpose of anastomosing, with the arteries of the placenta—since no such excrescence is found.

4. From the stimulus of the venereal appetite—since that is known as well to exist without this discharge, as the discharge without it.

5. From the secretion of an acrid fluid, by the womb—as no such secretion is known.

6. From luxurious living—as it is found where luxury is unknown.

7. From a partial plethora of the womb—since sufficient proofs of such limited plethora cannot be produced, as being repugnant to the laws of the vascular system; nor, if produced, does it seem adequate to the great purpose of menstruation.

8. From a peculiar structure of the vessels of the womb, by sinuses and venæ
cæcales

cæcales—as no such structure is discovered by anatomy.

9. From a topical congestion, derived from a separate and late evolution of the vessels of the womb—as sufficient proofs of such topical congestion, which are but other words for partial plethora, do not exist, and the late evolution of the vessels of the womb, which in effect is no more than the particular enlargement of this organ at puberty, seems rather to be the effect than the cause of menstruation.

XLV. But menstruation seems deducible,

1. From the peculiar structure of the womb, in its vascular and nervous systems (XXIX.) affording a predisposing cause.

2. From a general plethora of the whole body, furnishing an occasional cause.

3. From a vascular spasm produced by the two former causes, and always demonstrable by the pulse (XLI.) becoming the proximate cause.

XLVI. The commencement of menstruation seems to be determined by puberty; the cessation of each term, by a removal

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removal of the plethora and elasticity of the vessels ; and the periodical return by a renewed plethora and the force of habit upon the constitution, with the state of the vessels.

XLVII. The uses of menstruation are,

1. To habituate the body to the generation of more blood than is necessary for its support, that a supply may be always ready for the support of the young in gestation and suckling.

2. To prevent disease in the system from the effects of plethora.

3. To preserve the organs of generation in a constant state of aptitude for conception.

C O I T I O N.

XLVIII. Coition is that operation by which the female organs of generation, from the friction of the penis, undergo the venereal orgasm.

XLIX. The Venereal Orgasm is a strong sensation of pleasure, in the clitoris, extended through the organs of generation, and communicated to the whole frame, exciting in it tension, and spasm, and attended with—

1. Tur-

1. Turgescence, redness, and heat in the organs.

2. A spasmodic contraction of them, particularly of the fimbriæ, upon the ovaria.

3. A sudden evacuation of mucus, called emission, from the glands of the external parts, vagina, and cervix uteri.

4. Generally, with the reception of the semen masculinum into the womb, and probably with its communication to the ovaria, in fruitful coitions.

L. Coition is always succeeded by immediate relaxation, with consequent languor, and dejection of spirits: it is sometimes attended with fainting, convulsions, epilepsy, or palsy; and when used in excess, it never fails to enervate the body.—Its prime purpose appears to be

C O N C E P T I O N.

LI. Conception is the union of the prolific principles of male and female, forming the rudiments of a new being, or embryo, which partakes of the properties of both.

LII.

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LII. This union is effected by coition only, the male semen being injected into the vagina, during the venereal orgasm (XLVIII. and XLIX.)

LIII. The prolific principle of the male evidently resides in the semen; since, without it, conception cannot take place. But, in what particular part of it, seems to be as carefully concealed, as improbable to be discovered; for, neither does it appear to be found in atoms, in a subtile vapour, in a spirit, in animalcules, nor in organized particles.

LIV. The prolific principle of the female is also as evidently found in the ovaria; since, without what they furnish conception can no more take place, than without the male semen. This principle, therefore, cannot reside in menstrual blood; and it also appears, that what the ovaria furnish is neither semen, according to the ancients, nor genital liquor, according to the moderns; as there is no passage for either from the ovaria. But that it is an ovum, or egg, containing a small quantity of fine fluid, sufficiently appears from the structure
of

of the parts (XXVIII.), from analogy, and from observation and experiment.

LV. The union of the prolific principles does not appear to occur in the womb, by mixture,

1. Of two feeds, containing original particles of all kinds, in the body, which separate, and attract each other.

2. Of male seed and female menstrual blood: the first furnishing life, or motion, the second matter.

3. Of two feeds, producing fermentation, and rarefaction, and thence the growth of organs.

4. Of two seminal fluids, each replete with living, organic particles, which, uniting, compose the new being.

5. Of two seminal liquors, forming a tertium quid, like acid and alkali producing a neutral.

LVI. Nor does this union (LI.) appear to occur by absorption of the semen masculinum, or of its volatile vapour, into the mass of blood, and its communication thence, by a kind of contagion, to the womb,

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womb, endowing it with a plastic generative power.

LVII. Nor by the like absorption, and immediate communication, by transpiration to the ova, in the ovaria, and consequent vivification of the embryo, already delineated therein.

LVIII. Nor by a fermentation of the male seed in the womb, yielding a spirit, to be communicated to the ovaria, through the tubes, and there vivifying the embryo, already delineated.

LIX. Nor by the introduction of an animalcule, from the male seed into the ovum, either in the womb, tubes, or ovaria, and its developement of parts originally formed.

LX. But that it occurs, in the ovaria, by the communication of semen to them through the womb and Fallopian tubes, and by its absorption into a mature ovum, where, by mixture with the liquor of this ovum, it forms the rudiments of the embryo, appears,

1. From reasons drawn from the structure of the parts.

2. From

2. From the dissection of living animals, and of dead subjects, immediately after coition.

3. From observations upon extra-uterine foetuses, (LXXX.)

4. From the analogy of oviparous animals.

LXI. If two, three, or more ova, are ripe at the time the male seed is applied to the ovaria, an equal number of embryos will be formed; whence twins, trines, or even a greater number of foetuses, are sometimes produced, and that always by the same coition; and hence also it appears, why women cannot conceive before puberty, nor after they become effete, viz. from the want of mature ova.

LXII. There are no certain signs, by which to distinguish conception, when it happens, the following being only equivocal: 1. Excessive pleasure in coition. 2. Dryness of the penis, on retraction from the vagina. 3. Retention of the male semen. 4. A sensation of fainting. 5. A sensation of titillation, with slight pain in the hypogastric region. More certain signs of
D preg-

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pregnancy are therefore to be sought from the symptoms of gestation, (CXXIV.)

LXIII. The prime use of conception is to form the rudiments of a new being, or embryo, similar to its parents, in order that the species may be propagated.

PRETERNATURAL OPERATIONS OF THE ORGANS OF GENERATION.

LXIV. The Preternatural Operations of the organs of generation are such as are out of the ordinary course of nature, and for which these parts do not seem constructed nor designed. They are, false and monstrous conception, improperly so called, and masturbation ; superfætation, being only an imaginary operation.

FALSE CONCEPTION.

LXV. A False Conception, more properly to be called Uterine Concretion, as it is not formed by the union of prolific principles, (LI.), is an unorganized lifeless mass, from the size of a pigeon's to that of a goose's egg, or larger, when it is unnecessarily distinguished by the name of mola.

LXVI.

LXVI. The seat of this concretion is in the womb, where it is produced,

1. By a separation of the ovum from the womb, in the first weeks or months of gestation; and by the accretion of the fibrous parts of the blood, which then issues from the womb, to the external surface of the ovum, the embryo being dissolved in its waters, which are generally expressed, or if it is grown to a foetus, being found in the centre of the concretion.

2. By the like accretion of blood, to remaining scraps of placenta or membranes, after abortions or deliveries.

3. By coagulation, and compression of the crassamentum of the blood in menstruation, especially when it is profuse, and in floodings.

LXVII. Uterine concretions, thus originated, condensed into a round, pulpy, spongy, fleshy, schirrhous, or even cartilaginous substance, and externally polished into a smooth, fine, membranous surface, by the compression of the womb, until at length, after a various space of time, but generally in a few months, they are ex-

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pelled by its contractions, mostly without danger, but sometimes with pain and hæmorrhagy, as in abortions, (CCLXXII.), like which they are to be treated. Petrifactions, ossifications, and tophous substances, have also been sometimes found in the womb.

MONSTROUS CONCEPTION.

LXVIII. A Monstrous Conception, more properly to be called preternatural formations, is an irregularity of conformation, or construction of the fœtus, or any of its parts; which irregularity may be divided into the following kinds.

1. Superfluity, is when there are more parts than natural.

2. Deficiency, is when any part is defective, or wanting.

3. Disproportion, is when the whole, or any part, is greater or smaller than natural.

4. Disfiguration, is when the whole, or any part, is in shape, colour, or conformation, different from what is natural.

5. Dislo-

5. Dislocation, is when any part is placed out of its natural situation.

6. Concretion, is when two distinct parts, or two foetuses, cohere.

LXIX. The higher degrees of irregularity, especially when combined, constitute a monster, the lower only monstrosity.

LXX. Preternatural formation of the foetus does not appear to arise from any powers in the imagination of the mother, during conception or gestation, either to add to, diminish from, or alter any parts of the foetus, for these reasons,—

1. The mother is generally ignorant when, and always how, conception happens.

2. The mother's imagination possesses none of the above powers over any part of her own body.

3. There is no communication, nor connection by blood-vessels or nerves, between mother and foetus; whence oppressions upon the one are not perceived by the other.

4. Preternatural formation often appears, without the least emotion in the mother's imagination.

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5. The mother's imagination is often disturbed by longings, frights, injuries, &c. without producing preternatural formation.

6. Preternatural formation appears thro' all the species of animals, as well oviparous as viviparous, and even of vegetables.

LXX. But preternatural formation seems to arise from the following causes :

1. From imperfection, or disproportion in the prolific principles of male or female, or of both, producing superfluity, deficiency, or disproportion.

2. From a disturbed union of these principles, producing disfiguration and dislocation.

3. From injury received externally, by contusion, compression, &c. or internally, by disease, producing concretion, or deficiency.

MANUSTUPRATION.

LXXI. Manustupration, Masturbation, or Onanism, is that base, immoral, and unnatural operation, by which the venereal
orgasm,

orgasm (XLIX.) is excited without the use of the penis by the friction of the clitoris or vagina.

LXXII. Masturbation, often repeated, generally produces the following effects :

1. It weakens and relaxes the solids in general, and particularly those of the organs of generation ; whence they become subject to several disorders, to be mentioned in the therapeutic part of generation, (LXXVI.)

2. It enervates the system, and produces morbid irritability ; whence emaciation, debility, and a variety of the severest nervous symptoms.

3. It destroys the natural venereal appetite ; whence, as well as from the former effects (1. and 2.) it often occasions sterility (CXLIII.)

SUPERFOETATION.

LXXIII. The imaginary, preternatural operation, called Superfoetation, is supposed to be, a second, or reiterated conception, supervening a preceding conception (LI.) in the same organs.

LXXIV. But if we carefully compare the manner in which conception happens (LX.) with the situation of the parts during uteragestation (CXLVIII. 1.), we must conclude superfœtation to be utterly impossible.

LXXV. Conception (LI.) during extra-uterine gestation (CXLVIII. 2.) or a second conception succeeding the first, during utragestation, by means of a double uterus, being both probable and practicable, are different from supposed superfœtation, though they may have been mistaken for it.

THERAPEUTIC PART OF GENERATION.

LXXVI. The Therapeutic Part of Generation is that which teaches the nature and medical treatment of those diseases to which its organs render females liable, in the unimpregnated state, by explaining their causes, symptoms, and curative indications. These diseases are as follow.

OVER,

OVERGROWTH OF THE LABIA, CLITORIS, OR NYMPHÆ.

LXXVII. An Overgrowth of the Labia, Clitoris, or Nymphæ, is an indolent enlargement of these parts.

LXXVIII. Its causes are, heat of the parts, climate, and season, whence most common in warm countries; relaxation in general, or of the external organs in particular, especially from masturbation, or friction in exercise.

LXXIX. Its symptoms are, pain, excoriation, and inflammation, in exercise or coition.

LXXX. The curative indications are, 1. To obviate relaxation, by the cold bath, and by general or topical astringents. 2. To extirpate the enlarged part, or its redundancy.

IMPERFORATION, OR PRETERNATURAL THICKNESS OF THE HYMEN.

LXXXI. 1. Imperforation of the hymen is, the want of any hole, or opening, in
this

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this membrane. And, 2. Preternatural thickness of it, is such density of its substance as to prevent its easy laceration.

LXXXII. The cause is, preternatural formation (LXVIII.)

LXXXIII. The symptoms are, impotence of coition, sterility, and in case of imperforation, collection of the menses in the vagina, whence a soft humour projecting through the external orifice, somewhat resembling, but distinguishable from procidentia uteri (XCVII. 2.) by the want of os tincæ (XXV.) and passage into the vagina or os externum; whence also acute pains through the loins and pelvis, with weight, heat, and fever, which appear about the commencement of menstruation (XXIX.) and at first last only for a few days, but afterwards are generally aggravated, in monthly periods, until at length they become extremely severe, and almost intolerable.

LXXXIV. The indications of cure are,
1. In imperforation, to open a passage by a crucial incision. 2. To dilate, and heal the orifice. 3. In case of thick hymen, to
relax

relax and to dilate the orifice, by sponge tents, &c.

STRICTURE, NARROWNESS, OR SHORT-
NESS OF VAGINA.

LXXXV. 1. Stricture of the vagina is a contraction of its diameter in any particular part. 2. Narrowness is a contraction of its whole diameter; and, 3. Shortness is a deficiency in its proper length.

LXXXVI. The causes are, preceding inflammation, cicatrix from ulceration, and preternatural formation (LXVIII.)

LXXXVII. The symptoms are, pain in, or impotence of coition, and consequent sterility.

LXXXVIII. The curatory indications are, to relax, and to dilate to the natural size.

COHESION OF THE SIDES OF THE
VAGINA.

LXXXIX. A Cohesion of the Sides of the Vagina, is a partial or total coalescence of the internal surface of this organ, so as to lessen or close up its cavity.

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XC. The causes of this cohesion are, preceding inflammation, or excoriation, and preternatural formation.

XCI. The symptoms are, impotence of coition, and sterility, with a collection of menses, and its effects (LXXXIII.)

XCII. The curative indications are,
1. To open a passage, by dissection, or the trocar. 2. To dilate that passage by sponge tents, &c. and to heal it.

FUNGUS OF THE VAGINA OR UTERUS.

XCIII. A Fungus, polypus, wen, or excrescence of the vagina or uterus, is a soft, spongy, vascular tumour, growing from the internal surface of these organs.

XCIV. The causes are, a cacochymic habit, an obstruction of a gland, or an injury of the part.

XCV. The symptoms are a pale look, irregular menstruation (CXVIII.) fluor albus (CXVII.) or a briny discharge; a weight, pressure, or uneasiness, and the sensation of a tumour in the vagina, which descends, and appears sometimes externally, like procidentia uteri (XCVII. 2.)
but

but is distinguishable from it by its generally growing from a small peduncle, and being thick below, contrary to the shape of the womb; and by its want of the ostium on its lower extremity, whilst that may be felt in the vagina.

XCVI. The curative indications are,
 1. To restore a sound habit of body by a nutrient diet, and corroborants. 2. To extirpate the tumour by the knife, or by ligature.

PROLAPSUS, PROCIDENTIA, OR INVERSION OF THE VAGINA, OR UTERUS.

XCVII. 1. A Prolapsus Uteri is a descent of the womb into the vagina, by which the os uteri approaches nearer than natural to the os externum. 2. A Procidentia Uteri is a further descent of the womb through the vagina, by which it projects partly or totally through the os externum. 3. An Inversion of the Vagina is the turning of the inside of this organ out, which happens in the complete procidentia uteri. 4. Inversion of the Womb is also the turning

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turning of its inside out, or the projection of the fundus through the os uteri.

XCVIII. The causes of these are a general or topical relaxation, especially from injury in delivery, great straining of the body, or masturbatory. A fungus (XCIII.) growing from the fundus uteri.

XCIX. The symptoms are pain in the loins and pubis, a sense of weight, pressure, and bearing down in the pelvis, with the sensation of a tumour in the vagina or os externum, stranguary, tenesmus, impotence of coition, pain in walking, excoriation, ulceration, inflammation, strangulation, and mortification.

C. The indications of cure are, 1. To obviate relaxation by general and topical strengtheners and astringents. 2. To obviate the symptoms. 3. To reduce the parts to their natural situation. 4. To retain them there by the use of pessaries.

SCHIRRHUS AND CANCER OF THE WOMB OR OVARIA.

CL. 1. A schirrhous of the womb or ovaria, is a hard indolent enlargement of these

these organs, generally the forerunner of,
2. A cancer, which is schirrhous, attended with acute pain, and frequently with foetid ulceration, of a peculiar nature.

CII. The causes are a cacochymic habit, acrimonious humours, irregularity of menstruation (CXVIII.) fluor albus (CXXVII.) celibacy, sterility (CXLIII.) and an injury in delivery, or any external violence.

CIII. 1. The symptoms of a schirrhous in the womb are, tumour, weight, and pressure in the pelvis; and as these increase, the fundus uteri is found rising into the abdomen, above the symphysis of the pubis. In a schirrhous of the ovaria, a tumour is found through the parietes of the abdomen, in one or both sides of the hypogastric regions—both these are attended with irregularity of menstruation, and sterility, and the latter often with a dropsey of the abdomen and ovaria.

2. The symptoms of cancer in the womb are, those of schirrhous there, with heat, uneasiness, pricking, itching, burning, lancinating pain in the parts, particularly

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cularly increased by warmth; a thin, foetid, sanious, ichorus, briny, yellow, black, acrid, scalding, hot, corrosive, excoriating discharge, with frequent hæmorrhages from the parts, fallow complexion, loss of appetite, emaciation, anxiety, restlessness, fever, faintings, convulsions, impotence of coition, and sterility.

3. The symptoms of a cancer in the ovaria are those of schirrhous there, with pain, &c. as above.

CIV. The indications of cure are, 1. To remove the causes. 2. To obviate and retard the progress of the disease, by restoring and preserving the most natural habit of body, and by avoiding every thing that is heating, stimulating, or irritating, either externally or internally. 3. In case of a discharge, to cleanse and protect the parts from its acrimony, by soft, balsamic, tepid injections. 4. To palliate the symptoms, as particularly acute pain, and restlessness by sedatives, &c.

DROPSY

DROPSY OF THE WOMB.

CV. A Dropsy of the Womb is a collection of water in its cavity, sometimes with hydatides.

CVI. The causes of this disorder are, an accurate stoppage of the os uteri, attended with a greater secretion of lymph into, than absorption from, the cavity of the womb.

CVII. Its symptoms are, a suppression of menstruation (CXIX. 2.) fullness of the breasts; nausea, vomiting, and a gradual distention of the abdomen from below upwards, whence it is almost always mistaken for pregnancy; but it is distinguishable by thirst, paucity of urine, emaciation, and want of motion after the fifth or sixth month of its duration. It is distinguishable from ascites by the circumscription of the tumour, obscurity of fluctuation, and suppression of menstruation; which last symptom, with the situation of the tumour in the middle of the abdomen, distinguishes it from a dropsy of the ovaria.

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CVIII. The indications of cure are,
1. To promote the contraction of the womb, by strengtheners, stimulants, and shocks of the body, from vomits or exercise. 2. To open the mouth of the womb by the introduction of the finger, or a catheter. 3. To obviate a relapse, by strengthening the tone of the fibres in general.

DROPSY OF THE OVARIA.

CIX. A Dropsy of the Ovaria is a collection of water in these organs, either contained in one cyst, or in the ova, or in hydatides, which are frequently found in and upon these organs.

CX. The causes of this disorder are, an injury of the ovaria in delivery, or from accident; a schirrhous or cancer in them; all the causes of general dropsy, such as a broken constitution, thinness of the blood, surfeits of spirituous liquors, or of cold water, especially when the body has been heated, suppressed evacuations, obstruction of the viscera, or a rupture of lymphatics.

CXI.

CXI. Its symptoms are, a dull aching pain of the loins, tumefaction of one or both ovaria, discernible by the touch, through the parietes of the abdomen, and afterwards an increase of the ovaria, with fluctuation in them, until they at length fill and distend the abdomen like ascites, from which they are to be known by the preceding symptoms; a thirst, decrease of urine, loss of appetite, paleness, emaciation, colics, and irregularity of menstruation (CXVIII.).

CXII. The indications of cure are,
 1. To avoid the introduction of water into the fluids, by abstinence from drink, and by deceiving thirst with acids and constant manducation,; by a dry nourishing diet, and dry air. 2. To promote the absorption and evacuation of the extravasated fluids; by emetics; by warm, stimulating hydragogue cathartics; by diuretics; and by diaphoretics. 3. To discharge the extravasated fluids, by tapping. 4. To strengthen the tone of the fibres in general, by the most nutrient diet, good air, and exercise, and by corroborants. 5. To

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constrict the vessels of the parts, by astringent injections after tapping.

CXIII. Dropsies of the Fallopian tube, ligaments, or between the coats of any of the organs, may be sufficiently understood from what has been said.

C H L O R O S I S.

CXIV. Chlorosis, Febris Alba, Morbus Virgineus, or Green Sickness, is a cachexy peculiar to young women.

CXV. Its causes are, crude viscid diet, moist air, want of exercise, a constitution debilitated by preceding disorder, especially worms; lax fibres, viscid juices, and a torpid circulation.

CXVI. Its symptoms are, a peculiar, pale, sickly, green, or tawny complexion, great weight and heaviness, anxiety, difficulty of breathing, and palpitation of the heart, especially upon motion; obstruction or suppression of menstruation (CXIX.); a bloated look; œdematous swellings; loss of appetite; pica; costiveness; flatus; crude

crude thin urine; watery sweats; emaciation; leucophlegmatia; dropsy.

CXVII. The indications of cure are,
1. To remove the causes. 2. To brace the fibres, by tonics. 3. To promote the circulation, by stimulants, exercise, &c.

IRREGULARITY OF MENSTRUATION.

CXVIII. An irregularity of Menstruation is any deviation from the natural course, in that operation (XXXVIII.) and may be divided into obstruction, suppression, and profusion.

OBSTRUCTION AND SUPPRESSION OF MENSTRUATION.

CXIX. 1. An Obstruction of Menstruation is a deficiency in the natural quantity of that discharge; and 2. Suppression is a total stoppage of it.

CXX. Its causes are a cacochymic habit of body; chlorosis (CXIV.); lentor of the fluids; crude aliment; severe labour; evacuations; cold; astringent medicines; passions of the mind; rigidity, or spasm of the

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uterine vessels; and sometimes excessive plethora.

CXXI. Its symptoms are fullness, heaviness, and weight in the pelvis; with pains of the loins, and pubis; general weight, and oppression; fluor albus (CXXVII.) a quick, small, and often oppressed pulse; horripilations; flow, irregular fever; depraved appetite; pica; chlorosis (CXIV.); paleness of the carunculæ lachrymalis; turbid urine; nausea, and vomiting; swelling of the mammæ, and sometimes of the legs, with varices; anxiety; cough; dyspnoea; hysterics, inflammation, suppuration, and gangrene of the womb; apoplexy; madness; and hæmorrhages, from all parts of the body.

CXXII. The indications of cure are, 1. To remove the causes. 2. To obviate the symptoms. 3. To quicken the circulation, at the period of return, by exercise, and emmenagogues.

PROFUSION OF MENSTRUATION.

CXXIII. A Profusion of Menstruation is an excess of that discharge, either in fre-

frequency of return, in duration, or quantity.

CXXIV. Its causes are relaxation; plethora; thinness of the blood; salacity; manustrupation; increased motion of the blood, from fever, drunkenness, heat, exercise, sneezing, passions of the mind, &c. repressed evacuations; emmenagogues improperly administered; acrid pessaries; disorders of the organs, as fungus (XCIII.); cancer (CI. 2.) &c.

CXXV. The symptoms of this disease are, paleness; debility; pain of the back and loins; fluor albus (CXXVII.); emaciation; loss of appetite; horripilations; hysterics; coldness; faintings; convulsions; œdematous swellings; and dropsy.

CXXVI. The indications of cure are,
 1. To remove the causes. 2. To support the vis vitæ, by the most nourishing in-craffating diet. 3. To brace the fibres, by tonics. 4. To moderate the discharge, by styptics and opiates, &c.

FLUOR ALBUS.

CXXVII. A Fluor Albus is a constant evacuation, or dripping of humours, generally of a whitish, but sometimes of a yellow, green, or reddish colour, and of a mild or acrid, thick or thin consistence, from the womb, or vagina.

CXXVIII. Its causes are, a general relaxation of the system, from moist air, viscid diet, sedentary life, preceding disorder, profusion of menstruation, or other evacuations; a partial relaxation of the parts, from an injury in delivery, frequent abortions, immoderate venery, masturbation, strains of the back or loins, abuse of warm baths and stoves; an obstruction or suppression of the menses, or other suppressed evacuations; metastasis of humours; ferous colluvies; or obstructed perspiration.

CXXIX. The symptoms of this disorder are, a constant discharge of humours, known from gonorrhœa, by its slow commencement, and progress; pain, and weakness of the back and loins; general debility;

lity; paleness; lost appetite; pica; difficult respiration; hectic fever; atrophy; hysterics; œdematous swellings; heat, and scalding of urine; excoriation; and turbid urine.

CXXX. The indications of cure are,
 1. To remove the causes; as "general, or topical relaxation;" by general, or topical tonics, astringents, and the cold bath. "Obstructed, or suppressed evacuations," either by restoring them, or forming a substitute, by purges, blisters, issues, &c. "Serous colluvies," by serous evacuations. 2. To strengthen the fibres, by good air, exercise, nutrient diet, tonics, and astringents.

FUROR UTERINUS.

CXXXI. A Furor Uterinus is a vehement desire of venery, attended with melancholy, or mania.

CXXXII. Its causes are, an obstruction or suppression of menstruation; stimulants, taken internally, as spirituous liquors, heating food, cantharides, or emmenagogues; or applied externally, as acrid secretions,
 acrid

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acid pessaries, manustupration; passions of the mind.

CXXXIII. Its symptoms are melancholy; hysterics; mania, with the most obscene language and actions.

CXXXIV. The indications of cure are,
1. To remove the causes. 2. To abate irritation, by the antiphlogistic regimen, and sedatives. 3. To habituate the parts to their natural uses.

H Y S T E R I C S.

CXXXV. Hysterics is a spasmodic affection of the nervous system, chiefly confined to the alimentary canal.

CXXXVI. Its causes are a sanguineous temperament; plethoric habit; lax fibre; irritable system of body or mind; youth; heat of climate, or season; sterility; celibacy; hereditary disposition; passions of mind; irritations of the organs of sense, from strong smells, sounds, light, &c. sudden changes of the habit of body, from menstruation, fluor albus, pregnancy, delivery,

livery, lochia, coition; costiveness; flatulence; acrid ingesta, &c.

CXXXVII. Its symptoms are languors; weakness; timidity; propensity to cry and laugh; flashes of heat and cold; rigors of different parts, with pains, especially of back and loins; formication; frequent micturition of limpid urine, though sometimes the urine is scanty and high-coloured; head-ach; vertigo; clavus hystericus; globus hystericus; flatulence; colic; pain, swelling, or retraction of the abdomen; vomiting; strangulation; difficulty of respiration and deglutition; loss of voice and speech; spasm of the anus; borborygmi; hiccough; stricture of the præcordia; anxiety; palpitation; stiches; dry cough; asthma; irregular pulse; long faintings; convulsive fits; and sleepiness.

CXXXVIII. The indications of cure are, 1. To remove the causes. 2. To palliate the urgent symptoms. 3. To relax the spasm; by venesection, if there is plethora and pain; by warm, stimulating purges, the warm bath, antispasmodics, and nervous medicines. 4. To prevent a relapse,

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relapse, by avoiding all the causes (CXXXVI.); by exercise, air, regimen, and composure; by strengthening the nervous system, with the use of tonics, joined with warm hysteric medicines.

IMPOTENCE OF COITION.

CXXXIX. An Impotence of Coition is the incapacity of having the venereal orgasm (XLIX.) excited, by the male penis.

CXL. Its causes are preceding disorders of the organs of generation; general disorder; extreme relaxation of the organs; preternatural insensibility of them; masturbation; paralysis.

CXLI. Its symptoms are flaccidity of the parts; want of their natural sensations; and sterility.

CXLII. The indications of cure are, 1. To remove the causes. 2. To excite sensibility, by strengtheners, and stimulants.

S T E R I L I T Y.

CXLIII. Sterility is an incapacity of conception (LI.)

CXLIV.

CXLIV. Its causes are preceding disorders of the organs; general disorder; obesity; and obstructions of the Fallopian tubes.

CXLV. The indication of cure is, to remove the causes.

P A R T II.

G E S T A T I O N.

CXLVI. **T**HE second part of midwifery, treats of Gestation, or the carrying of the young, from the period of conception (LI.), to that of delivery (CCLXXIX.).

CXLVII. Gestation is of two kinds,

1. Natural, or uterine; when the fœtus, secundines, and waters are lodged within the womb.

2. Preternatural, or extra-uterine, when these lie without that organ, in the cavity of the pelvis, or abdomen; and each of these is divided into an anatomical, a physiological,

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fiological, a pathological, and a therapeutic part.

ANATOMICAL PART OF UTERINE GESTATION.

CXLVIII. The Anatomical Part of Uterine Gestation demonstrates the changes made in the organs of generation, by gravidity, with the contents of the uterus.

CXLIX. The gravid uterus, at the full time, differs from the unimpregnated, in shape, size, situation, and structure.

CL. The shape of the gravid womb is nearly oval, with the thicker end upwards, and smaller downwards; but as it is not perfectly full, it is generally liable to considerable variation, and inequality—

1. From the position of the woman, when the body is erect, rendering it shorter, thicker, and rounder; and when supine, longer, broader, and flatter, &c.—

2. From the distention of its contents, raising it where the placenta adheres, or where any part of the foetus presses, especially when there are two or more foetuses—

3. From

3. From the compression of the surrounding parts, confining it, as where the spine forms a longitudinal, or the brim of the pelvis a circular depression, &c.

CLI. The size of the gravid, which is much greater than that of the unimpregnated uterus, as it distends the whole cavity of the hypogastric and umbilical regions of the abdomen, reaching from within the brim of the pelvis, to very near the bottom of the stomach in length, and from side to side in breadth. Its two cavities, now thrown into one, are also enlarged in proportion, though there are no certain limits to the size of the womb, as these are determined by the size of the woman, and the quantity of its contents.

CLII. The situation of the gravid is also remarkably different from that of the unimpregnated womb, as it is gradually removed from the pelvis to the abdomen, where it lodges before the intestines, raising some part of them, with the omentum, upwards on its fundus, and compressing the whole viscera, backwards, and upwards, except the bladder, which it forces down-

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downwards and forwards. The os tinæ, and part of the collum uteri, are suspended in the brim of the pelvis, when that is of a proper size, but when too narrow, they rest more upon it, whilst the axis of the womb (XXV.) intersects that of the pelvis (XII.) at an obtuse angle, the fundus being generally forced a little forwards by the spine, or sometimes more considerably so by the confinement of dress. The fundus also falls forwards, and sometimes hangs, as it were, over the pubis, from the great relaxation of the parieties of the abdomen; when the case gets the name of pendulous belly. And it is farther in some measure directed either forwards, backwards, or sideways, by deformity, or other circumstances of pressure—Thus as the axis of the uterus scarcely ever coincides with the axis of the pelvis, the womb may be said to be more or less oblique.

CLIII. The structure of the gravid womb is materially different from that of the unimpregnated—For though the blood-vessels and nerves (XXIX.) remain the same in number and name, yet the first become

become large, beyond proportion to the increase of the womb. The veins are also considerably larger in proportion than the arteries; and from their size, being capable of receiving the end of the little finger, they have been improperly styled sinuses. As they lie principally near the centre of the substance of the womb, their sides are compressed or flattened.—Both they and the arteries anastomose respectively, and the latter run in a serpentine, or contortuous course, as in the unimpregnated state. These vessels are larger and more numerous where the placenta adheres; and their lateral branches, which open there into the womb, being also proportionably enlarged, have their orifices distended, and patulous, even to the size of a common goose quill.

CLIV. The substance of the womb is much more fibrous and muscular than in the unimpregnated state; though distinct strata are traced with much difficulty. In general the fibres seem to form circles from three different centres, viz. the os uteri, and orifices of the Fallopian tubes.—It is

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also

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also more soft, spongy, and tender, whilst its thickness remains very much the same; though from the distension of its vessels, this perhaps is rather increased than diminished, and that unequally, as the vessels happen to be enlarged at this or that part, but more especially where the placenta adheres. The os tincæ is found perfectly closed, and as it were most accurately sealed by a thick viscid gluten, which constitutes however no difference to the touch (CCXC.).

CLV. The ligaments also differ in the gravid from the unimpregnated womb. 1. The broad ligaments, being almost obliterated, come off from the sides of the womb at the collum, instead of the fundus.—And 2. The vessels of the round ligaments, becoming much larger, run down along the fore part of the womb, and come off at the collum also, instead of the fundus.

CLVI. The Fallopian tubes, instead of coming off at right angles from the fundus uteri, are confined close to the womb, until they descend to the collum, where

where they stretch off in a fold of the broad ligaments. They are however raised to a greater distance from the ovaria.

CLVII. In one of the ovaria there is always found a round, vascular, glandular body, of a clay colour, whence it is called corpus luteum. Immediately after conception it is found largest, and hollow, its cavity being then capable of containing a horsebean; but as gestation advances, it decreases in size, until, in some time after delivery, it is obliterated.—There is always one of these found, either in the same, or in different ovaria, for each ovum that has been impregnated—and it appears to be the calix of that ovum.

CLVIII. Upon the ovarium, without this body, in the early months of gestation, is always found a bloody speck, through which a small hole leads into the cavity of the corpus luteum, admitting, with difficulty, the passage of a hog's bristle.

CLIX. The vagina is also in some degree altered by uterine gestation, its substance becoming softer and laxer, and its

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fibres and vessels more apparent; whence it is also found wider and shorter.

CONTENTS OF THE GRAVID
UTERUS.

CLX. The Contents of the Gravid Uterus, at full time, are the foetus, secundines, and waters.

FOETUS IN UTERO.

CLXI. Of the Foetus in Utero are to be noticed, its size, position, and internal structure, so far as this differs materially from the adult.

CLXII. The Size of the foetus varies considerably, according to the size of its parents, the state of the mother's health, constitution, manner of life, &c. But in general it weighs from five to ten pounds, and measures from sixteen to twenty-six inches in length. Its head is the largest part, is of an oval figure, and measures generally from three to five or six inches from the forehead to the vertex, and from
two

two to three inches and a half, from ear to ear, in a straight line through the skull; being by this shape peculiarly fitted to pass through the pelvis, (XII.) as a key through a lock. The thorax is the next largest part, the space between the acromion of each shoulder, measuring from three to four inches, whilst, between the sternum and spine, it measures little more than two. The remainder of the trunk decreases in size, until it ends in a small pelvis, with very small extremities, in proportion to the body or head.

CLXIII. The Position of the Fœtus in Utero generally is with the head downwards, and the feet to the fundus, the spine being bent forwards, the chin rests upon the breast, whilst the knees are drawn up to the belly, and the heels to the buttocks; the arms lying along the sides, or bent a little forwards, before the breast or abdomen.—In this collected, oval form, the fœtus generally rests, rather a little to one side of the mother's spine, with its vertex to the inside of the os tin-
cæ, and an ear to the sacrum and pubis;

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one side lying obliquely towards the navel of the mother, whilst the other is lodged along her spine.—But though this is the common, and therefore the natural position of the fœtus, it is liable to the greatest variation of uncommon positions, which may be called preternatural, when they differ materially from this.—This position seems to be determined by the natural contractions of the muscles of the fœtus; by the shape and size of the cavity in which it is lodged; and by the specific gravities of its different parts. Whilst its numerous and various preternatural positions seem to arise from shock, concussion, or agitation of the mother, from irregular pressure upon the womb, occasioned by distortion, improper dress, &c. from uneasiness of the fœtus, occasioned by internal causes, and from the inconvenience of a plurality of fœtuses.

CLXIV. The Internal Structure of the fœtus differs from that of the adult, in the state of the bones, glands, alimentary and urinary passages, and some parts of the vascular system.

CLXV.

CLXV. The bones of the fœtus, in general, differ from those of the adult, in being softer and more cartilaginous; but those of the head, in particular, require close observation. In general, the whole bones of the cranium are imperfect, their edges being thin, and covered with cartilage, are not united by close future, as in the adult, but form distinct seams, which can be easily felt through the integuments. These seams are generally more open the younger the fœtus is, and closer the older it is.—The sagittal future forms the widest seam, the coronal next, and the lamdoidal next, whilst a still narrower seam is also generally felt dividing the frontal bone through its middle, in a line of direction with the sagittal seam. Where the coronal crosses the sagittal seam, the bones being deficient, a hole or soft place is felt, called from the French, fontanelle—and there being sometimes found the like hole, though much smaller, where the lamdoidal crosses the sagittal seam, the first gets the name of the greater, the second of the smaller fontanelle.—A small space around

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the latter, where the hair diverges, is called the vertex. The use of these seams, instead of sutures, is to suffer the head to be varied in its shape, by the force of labour in delivery, compressing it against the sides of the pelvis.—The cranium however is sometimes found totally ossified.

CLXVI. The glandular parts of the fœtus, except the mammæ of females, are in general larger in proportion than in the adult, and the lungs, unoccupied by air, are smaller, more compact, and much heavier than in the infant after it has breathed; whence the swimming of the lungs of an infant in water, has been considered as a proof of its having been live-born, and vice versa: but the experiment is liable to much fallacy, and therefore never to be depended upon, in a judicial trial of life and death. The thymus, and glandulæ renales, are found remarkably large.

CLXVII. The state of the alimentary passage differs—1. In having the stomach of the fœtus considerably filled, with what seems to be partly gastric juice, and partly
ly

ly a liquor like that of the amnion, but more thick and viscid.—The small guts contain a little of a still thicker, glairy, and mucilaginous liquor; and the rectum and colon are considerably distended with a black, thick, extremely viscid, and tenacious excrement, called meconium, from its resemblance to that inspissated juice.—The anus is pretty often formed imperforated, and sometimes the inner surface of the rectum coheres for a small space.

CLVIII. The state of the urinary passages differs only in having the bladder distended with a pretty large quantity of urine, and in its being supplied with a small ligamentous, impervious rope, called urachus, that leads from its fundus, between the umbilical arteries, into the umbilicus, and is sometimes traced along this into the placenta.—Nor does urine pass through the urethra, until after birth, whence probably it is pretty often found imperforated.

CLXIX. The parts of the vascular system, in which the foetus is found to differ from the adult, are as follow—

1. In

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1. In the foetus a large vein is found entering its navel, called the umbilical vein, which runs straight to the liver, along the falciform ligament, where it enters the vena portarum.

2. From the vena portarum again arises a small vein, called ductus venosus, which enters the vena cava inferior.

3. Between the two auricles of the heart is an oval hole, called foramen ovale, covered with a valve on the side of the left auricle, which therefore suffers the blood to pass from right to left, but prevents its returning, or from passing from left to right.

4. From the pulmonary artery arises a branch, called canalis arteriosus, which leads in a short course directly into the descending aorta.

5. The internal iliac arteries, making a flexure, or curve, at the brim of the pelvis, run up along the sides of the bladder, approaching nearer each other, until, at its fundus, they become almost contiguous, lying on each side of the urachus, whence they run upwards, until they

they pierce the abdomen, together with the umbilical vein, at the navel, whence they are called the umbilical arteries.

SECUNDINES.

CLXX. The Secundines, so called, from their being generally delivered after the foetus, are the umbilical chord, placenta, and membranes.

CLXXI. The Umbilical Chord, or Rope, is a combination of three large blood vessels, which run from the navel of the foetus, to the placenta. There are generally two arteries, very seldom but one, and one vein. The arteries commonly twist round the vein, in an irregular manner, but sometimes run straight along it. The chord is frequently distended, especially near the foetus, into little bulbous tumours, called knots, and a noose is sometimes, though rarely found upon it. It is generally about two feet in length, but sometimes varies from eight inches to three or even four feet. It generally fluctuates loose in the waters, but is often found

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found rolled around the foetus's neck, or different parts of its body or extremities. It is thickest and strongest next to the foetus, and smallest and weakest next to the placenta. It is covered with a smooth polished coat, which it receives from the membranes, and within this the space around the vessels is filled with a clear, thick, viscid, gelatinous, almost demicartilaginous substance, which renders the chord pretty stiff, and keeps the sides of the vessels from being easily compressed. There is almost constantly found a chord to every foetus, but in some very rare instances, one chord has been said to serve two. By means of the chord a circulation of blood and juices is maintained between the placenta and foetus.

CLXXII. The Placenta, Womb-cake, or After-birth, is a flat, soft, spongy, vascular mass, generally of a circular figure, but sometimes oval, at others irregularly triangular, or square. It is from four to eight inches, or even a little more in diameter, and above an inch in thickness at the middle, whence it decreases but little to the edges.

edges. It has an external and an internal side or surface. By the external, which is divided into a number of lobes, it is closely connected to the internal surface of the womb. This side, whilst it is applied to the womb, is convex, and it is covered by the external chorion (CLXXIV.) The internal side is concave, and is covered by the internal chorion (CLXXV.), and amnion (CLXXVI.) Into this side, generally between the centre and the edge, but sometimes at the centre, and at others at the edge, the umbilical chord is inserted, whence its vessels dividing, run for some space along the surface, until they sink, and form the substance of the placenta; which appears to be a simple ramification of vessels, frequently anastomosing with each other, and becoming at length extremely minute, being matted, and interwoven together, and connected by a soft, spongy, cellular substance. The arteries and veins freely communicate with each other, as is proved by injection; but no injection can be thrown from either into the vessels of the womb, or vice versa. The
pla-

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placenta at sometimes appears more fibrous, and fleshy at others, more soft and pulpy, and again, though rarely, it is found thin and membranous, when it is most apt to have little detached lobes. In a plurality of foetuses there is generally found a placenta for each; but these placentæ are sometimes united with or without an anastomosis of blood-vessels; and in very rare instances there is only one placenta to two or more foetuses. The placenta is most commonly attached about the fundus uteri, but it also frequently adheres about the sides, and sometimes about the collum, and even over the os tincæ.

CLXXIII. The Membranes are a thin slender bag, which, with the placenta, line the whole internal surface of the womb, and contain the foetus and its waters. There is therefore a complete bag always found, with each distinct foetus that the womb contains. The membranes are divided into the external and the internal chorion, and the amnion.

CLXXIV. The External, Spongy, or False Chorion is a soft, opaque, extremely
tender

tender membrane, very rough, or villous on its outside. By these villi, which appear to be small fibres that pass between it and the uterus, it is closely connected to the whole internal surface of the womb, being continued over the external surface of the placenta, where it closely adheres to it, and superficially connects its lobes together, completely investing the whole ovum, and leaving no vacant space between it and the uterus. On the inner concave side it is smooth, and connected to the internal chorion by a very slender adhesion, with a few long slender fibres like small vessels running between them. It seems evidently furnished with some small vessels carrying red blood, particularly near the placenta, where it is always found thickest; and it is the *membrana decidua* of a celebrated contemporary anatomist.

CLXXV. The Internal or True Chorion is a thin transparent membranous bag, firmer and tougher than the former, between which and the Amnion it is situated, but separating from the former at the edges
of

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of the placenta, and covering the internal surface of this cake, to which it closely adheres, and sends off a process to form one of the coats of the umbilical chord. Its connexion with the amnion, though close, is very slender, by means of a gelatinous substance, and without any communication of blood-vessels, of which it seems totally destitute.

CLXXVI. The Amnion is the inmost of the three membranes; it is also the thinnest, finest, smoothest, most transparent, firmest, and toughest of them. Being closely connected to the internal chorion as above, it gives the external coat to the internal surface of the placenta, and to the umbilical chord, and it appears totally destitute of any species of vessels capable of conveying red blood.

CLXXVII. Between the chorion and amnion, at some little distance from the placenta, is found, though not always, a small, flat, white body, more solid than a bit of fat, and not quite so firm as a gland. In the early months of gestation it appears
to

to be a transparent little lymphatic bag, called *Vesicula Umbilicalis*, with two small fine vessels leading from it to the embryo.

W A T E R S.

CLXXVIII. The Waters are a quantity of thin, fine, serous fluid, found in the cavity of the membranes, surrounding the foetus. In general this fluid is pretty transparent, though sometimes it is a little reddish, and at others a little milky: whilst cold it is inodorus, but when heated, gives out a strong savoury animal smell. To the taste it is generally sub-saline, and when analysed, yields a small portion of sea salt. It is not coagulable by heat, but grows muddy on boiling, and evaporates to an oily extract. Its quantity is generally from one to three pints, and sometimes even much more, especially in weakly women, and those inclinable to dropfy; it is also much less, and even found in rare instances to be totally deficient at the full time, though constantly present in the first months. It is called *Liquor Amnii*, as being

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ing contained in that membrane, and appearing to be a secretion from it, and no excretion of the foetus. Its use seems to that of a soft bed for the embryo and foetus to be duly formed in, at the same time protecting it from pressure and injury, and probably yielding it some nourishment (CCVIII.). It may also help to form the cuticle, and prevent the external parts from cohering. It occasions the equal distention of the womb, and facilitates the birth, and also protects the womb from the impulse of the foetus.

CLXXIX. There is sometimes a collection of water formed between the membranes, which may properly get the name of False Waters.

ANATOMICAL PART OF EXTRA-UTERINE GESTATION.

CLXXX. The Anatomical Facts necessary to be known in Extra-uterine Gestation are as follow :

1. The foetus, secundines, and waters are in general the same as in uterine gestation.

2. The

2. The ovum is found lodged in or upon the ovaria, amongst the fimbriæ, in one of the Fallopian tubes, or in the cavity of the pelvis or abdomen. The placenta, which is generally large and fleshy, and external chorion, adhering to whatsoever parts they come into contact with.

3. The organs of generation undergo the following changes only: a corpus luteum (CLVIII.) for each fœtus is found in the ovaria: the womb and vagina are somewhat enlarged and softened: and when the ovum is confined to the tubes or ovaria, it stretches these into a round cyst or bag, which is apt to burst.

PHYSIOLOGICAL PART OF UTERINE GESTATION.

CLXXXI. The Physiological Part of Uterine Gestation is that which teaches its theories, by explaining—

1. The progress and growth of the ovum and uterus, with their connexion.

2. The circulation of the fœtus, so far as it differs from the adult.

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3. The

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3. The nutrition of the foetus. And,
4. The period of pregnancy.

PROGRESS AND GROWTH OF THE OVUM AND UTERUS, WITH THEIR CONNEXION.

CLXXXII. Soon after conception is effected, the impregnated ovum, projecting through the coats of its ovarium, is at length separated from it, and being received by the fimbriæ, which are clasped around the ovarium, is conveyed, by the peristaltic motion of the corresponding Fallopian tube, into the cavity of the uterus.

CLXXXIII. The impregnated ovum, being thus deposited in the womb, would probably soon pass through it, was not its orifice speedily and firmly closed up by a thick viscid gluten, that generally fills up the whole cavity of the collum uteri, and is now plentifully secreted by the glands of this part.

CLXXXIV. The ovum being thus confined within the womb, and generally to the cavity of the fundus, swims perhaps
in

in some part of the semen masculinum, that may remain in it, mixt with its moisture, whence the pores of the ovum filling, distending, and enlarging it by absorption, bring its external surface into contact with the internal surface of the womb.

CLXXXV. These surfaces thus macerated, swollen, and rendered still more soft and villous, being thus applied to each other, soon form a cohesion by their fine villi, which seem reciprocally to shoot into each other, and as it were to strike root in the opposite part.

CLXXXVI From this close, though slender connexion, without any anastomosis of vessels, a second source of absorption arises to the ovum, which hence increases in its magnitude, whilst its membranes thicken, and forming their laminæ still more distinct, become also more closely attached to the internal surface of the womb, whose villi seem to increase and decrease with those of the external surface of the ovum.

CLXXXVII. The calix of the ovum, by which it had principally adhered to the
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ovarium,

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ovarium, being its thickest and most vascular part, seems to branch out, and form that assemblage of vessels called the Placenta, which in the first weeks of gestation is not discoverable, until the membranes at this place, growing still thicker, and becoming more vascular mark its limits. The progress of its formation from thence is extremely rapid, and its growth much quicker than the rest of the ovum, until in a very short time it is completely formed, and very large in proportion to the ovum.

CLXXXVIII. That the secundines are the small membranous bag, which originally formed the unimpregnated ovum, only enlarged with its coats, developed and thickened, seems evident—

1. From their similarity to each other.
2. From the secundines being found earlier than any rudiments of the foetus, or before any connexion between them and the uterus, particularly in cases of analogy.
3. From their being found perfect, in cases of extra uterine foetus. And,
4. From

4. From their having no other apparent origin.

CLXXXIX. That the Placenta adheres to the womb by the same slender attachment that the external chorion does (CLXXXV.) without any anastomosis of blood vessels between them, seems to be sufficiently proved by the following facts and reasons :

1. The placenta and membranes separate generally with great ease and without pain from the womb, in delivery and abortion.

2. Anatomy, even with the aid of injection, cannot demonstrate anastomosis.

3. Though the mouths of pretty large vessels can be perceived to open upon the internal surface of the womb, where the placenta adheres, yet no corresponding vessels can be found opening on the surface of the placenta.

4. Though blood issues from the vessels of the womb, upon a separation of the placenta, yet no blood issues from the placenta.

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5. When the vessels of the foetus, umbilical chord, or placenta are opened whilst they remain attached to the womb, no blood will flow through them from the mother, even though the foetus and its secundines have been exhausted.

6. Though the mother is exhausted, or dies of hæmorrhage, the foetus and secundines are found to contain their natural quantity of blood.

7. Anastomosis is not only unnecessary, but it is probable that it would prove injurious in its effects upon the foetus whenever the mother's circulation might be disturbed, and also upon the mother, by the laceration of the vessels in the detachment or separation of the placenta from the womb.

CXC. The Ovum and Uterus being thus connected, increase gradually together, and that quickest in the first months. The ovum being also generally situated in the cavity of the fundus uteri, that part is of course first distended, and as it is enlarged, gradually changes its situation from the pelvis to the abdomen, rising above the ligaments and tubes. The fundus
uteri

uteri being thus distended and enlarged first, the collum is dilated next, in proportion as gestation advances, viz. about the third month, near one fourth of the collum is distended with the fundus; about the fifth month, near one half of it, when the fundus has arrived to the middle space between navel and pubis: at the seventh month, near three fourths, when the fundus has arisen above the navel; and in the ninth month the whole collum is obliterated, or dilated into one cavity with the fundus.

CXCI. It sometimes however seems to happen, that the impregnated ovum descends at first into the cavity of the collum uteri, and adheres there, when this is not filled up with viscid gluten, immediately upon the entrance of the ovum into the uterus, whence the distention will commence in the collum.

CXCII. When the ovum first enters the uterus, its size must necessarily be very small; at which time, and for some days after, the rudiments of the embryo are imperceptible, nor is it ascertained at what

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particular period they first became cognizable to our sight, but in general in some days after conception, the incipient organic stamina begin to assume form, and that in a pulpy or soft mucilaginous state, the brain, with two black specks in the place of eyes, and spinal marrow appearing first; the heart next, in a state of motion, whence called *punctum saliens*, followed by the other viscera, which appear bare until covered by the parietes of the abdomen and thorax. Small excrescences appear for extremities, which soon shoot forth into form, when it changes the name of embryo for that of foetus, all other distinctions being unnecessary.

CXCIII. As soon as the rudiments of the embryo are perceived, it is found adhering to the membranes by a close connexion at its abdomen, which is shortly after elongated, becoming first flat and conical, but soon changing into the regular umbilical chord, which thence generally keeps its due proportion in length and thickness, to the size of the foetus and secundines.

CXCIV.

CXCIV. The glandular and vascular systems being first formed and connected by the other necessary soft parts, as membranes and muscles; soft cartilages next appear in the place of, and are gradually changed into bones by a slow and gentle ossification, which, though sufficient for the support of so delicate a frame, is far from being completed at the full time. The hard bones are generally first formed, and the ossification in all commonly commences at the middle or hardest parts of the bones, and shoots as it were from a centre to the circumference, and that often from several points in the same bone.

CXCV. Though the heart and arteries appear in motion, from the period of their being discovered, yet the muscles are not generally perceived to move until about the half time, or nineteenth week of gestation, when some of its muscles contracting, throw the corresponding parts into small irregular motions, and the foetus is then said to quicken. This period however is liable to great uncertainty, as it happens frequently

ly from the beginning of the third, to the end of the fifth month.

CXCVI. An exceeding thin and fine cuticle appears as early as the cutis, though its appendages, the nails, with the hair of the head, are not perfectly formed until very near the full time; by which, with some few other marks, as figure, shape, size, &c. some rational conjectures may be formed of the age of foetuses, of which there is no certainty.

CXCVII. Though the foetus is not generally born until it has lain nine full months in the womb, yet it is so far formed, and so well matured before that period, that it appears capable of surviving the birth at the first of the eighth month, though scarcely at an earlier period.

CIRCULATION OF THE BLOOD IN THE UNBORN FOETUS, SO FAR AS IT DIFFERS FROM THAT OF THE ADULT.

CXCVIII. The circulation of the blood in the unborn foetus differs from that of the

- the adult, 1. In its course to the lungs.
2. In its course to and from the placenta.

CXCIX. Instead of the whole mass of blood which passes through the lungs of the adult, a very small portion only passes through the lungs of the foetus, on account of their collapsed state, the greater part being diverted from this course, by—

1. The foramen ovale (CLXIX. 3.).
- And,

2. The canalis arteriosus (CLXIX. 4.)

Both which passages are found closed soon after the birth, from their being forsaken by the blood which had before that period flowed through them; and the evident purpose of this difference in the circulation is to enable the foetus to live without respiration.

CC. The circulation next differs in the transmission of a large share of the blood of the foetus through the internal iliac arteries to the placenta, where it is dispersed through this organ, and being again collected by the veins, is returned, along with whatsoever juices the placenta and chorion receive from the uterus, through
the

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the umbilical vein, until it enters the vena portarum. But lest this addition of blood should surcharge the vessels of the liver, the superabundant quantity is carried directly into the vena cava inferior, by the ductus venosus (CLXIX. 2.) which passage, with the umbilical vein, from the navel to the liver, close immediately after the birth, from the want of circulation through them.

CCI. The purposes of this circulation between the foetus and placenta appear to be—

1. To convey to the foetus such juices as the chorion and placenta receive from the mother for its nourishment and increase.

2. To restore to the mother such parts of the blood of the foetus as are unfit for the purposes of its œconomy, or perhaps such as are thrown off by expiration in the adult.

3. To afford vires vitæ to the secundines.

NUTRITION OF THE FOETUS IN UTERO.

CCII. Nutrition is the supply and application of the aliment necessary for the support and increase of the embryo and foetus.

CCIII. It has been agreed by most, that this supply of aliment is drawn from the mother; some supposing it derived from her menstrual blood; others from a milky, chylous liquor, either prepared by the womb or the placenta; others from an exudation of the womb; others from the liquor amnii, either absorbed by the pores, or sucked by the mouth; and most from the maternal blood: whilst another singular opinion supposes it secreted by the thymus of the foetus itself, and thence conveyed to its stomach.

CCIV. But the nutriment of the embryo immediately after conception, appears to be derived, 1. From the contents of the ovum, as the germ in the seeds of vegetables is known to draw its first nourishment from that grain of seed or ovum in which
it

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it was conceived, until this strikes root in its womb the earth. So in the growth of plants from roots, the new sucker first draws its nourishment from the juices of the surrounding root, until that is exhausted.

CCV. Secondly, in Uterine Gestation, the ovum being conveyed into the womb, and exhausted of its own slender stores of aliment, absorbs a supply from the surrounding humidity until its attachment is formed with the womb, and from this supply, does it appear reasonable to conclude, is the incipient embryo nourished, during this short period.

CCVI. Thirdly, the cohesion between the ovum and uterus being formed, a new substantial and lasting source of nourishment to the embryo and foetus is opened, by the constant absorption of juices by the placenta and chorion, from the womb, now plentifully supplied by the suppression of the menses. That these are the finer parts of the mother's blood, without red globules, is certain at the beginning, and probable through the whole period of pregnancy,

nancy, sanguification being performed by the vessels of the foetus, as by those of the chick in ovo; and that they are conveyed at all times by the placenta and umbilicus, appears as certain, from there being no other passage or communication between them.

CCVII. These juices thus received into the vessels of the chorion and placenta, and conveyed by the umbilicus to the foetus, are in the course of its circulation intimately blended, mixt, and assimilated with its proper juices, so as to yield the principal part of the necessary matter for its support and increase.

CCVIII. But it appears pretty evident, from the following arguments and facts, that the foetus also derives some share of its nourishment from the liquor amnii, taken into the stomach, and undergoing the ordinary process of chyfication, &c.

1. The liquor amnii contains a nutritious matter (CLXXVIII.).

2. There is a free passage for it into the stomach as soon as the foetus is formed.

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3. A liquor sufficiently similar to it is found in the stomach and intestines.

4. Chyle has been found in the lacteals of a new-born infant.

5. Fæces are found in the intestines.

6. Loose hairs, of the colour of those on the skin of the fœtuses of animals, have been found in their stomachs, and intestines.

7. A column of ice has been found in dissections during frost, leading from the liquor amnii into the stomach of an animal fœtus.

8. The chick in ovo is nourished by the mouth as well as the navel.

9. Though nature is simple, she is generally certain in her operations, and often prefers a double means in the execution of the same intention, as in seeing with two eyes, hearing with two ears, &c.

10. By the passage of this liquor through the alimentary canal nature is materially assisted in her right formation of this important tube, whence the least preternatural formation scarcely ever occurs in it.

11. The

11. The passage of this thin fluid may also not only serve to keep the mouth and fauces free from the distressing effects of thirst, but it may serve to dilute the blood and humours.

12. Lastly, by this mode of nutrition, the destined organs are gradually and effectually taught and habituated to the execution of the most important offices of suction, deglutition, digestion, and chylickification, whence the new-born infant so readily performs them.

CCIX. The human skin being furnished with an infinite number of bibulous veins, or absorbents, and the foetus being constantly immersed, as it were, in a tepid bath of a nutritious fluid, it is reasonable to suppose that it receives some portion, however small, of nourishment by absorption through the pores of its skin.

CCX. A farther and essential use of this absorption probably arises from its diluting the foetal blood and juices, for which purposes both the matter and the mode seem well adapted.

PERIOD OF UTERINE GESTATION.

CCXI. The Period of Uterine Gestation is that space of time requisite for the perfect maturation of the fœtus in the womb, from the moment of its conception, until the commencement of Natural Labour (CCLXXXIV.).

CCXII. This was thought to have been seven months, by some of the most eminent amongst the ancients, who denied the space of eight months the same faculty, though they allowed nine months to be the most natural period.

CCXIII. Others imagined, that as nature had set limits to the periods of conception in brutes, so she did of gestation, but left the human species free as to both.

CCXIV. A celebrated ancient nation had a law entitling the posthumous child to inherit, if born within twelve months after its supposed father's death, imagining the fœtus capable of remaining so long in the womb; in which it has been followed

lowed by a modern nation of no small political esteem, but without sufficient foundation.

CCXV. Others have thought that nine calendar months, reckoned from the last day of the last menstruation, constituted the true period of gestation, and most women reckon thus erroneously.

CCXVI. But nine calendar months, or from 270 to 275 days, reckoned from the period of conception, are found, from observation, to constitute this period. The difficulty therefore lies in not knowing the exact point from whence to reckon, conception being generally indiscernible when it happens. — Where therefore there is no other certain mark, such as a limited congress of the sexes, &c. the most useful mode of reckoning is, from the middle space between the last menstruation, and the next period of it when suppressed.

CCXVII. Why nature has ordained this precise term in general to the gestation of women, seems to arise from the general size and structure of the human body, re-

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quiring just so long a space, and no longer, for her purposes of arranging its flamina, and maturing them for the birth.

CCXVIII. Nature however does not seem to be positively restrained to the exact same term in every woman, some certainly bringing forth within the nine months, and others again considerably exceeding them, according as the cause of labour (CCLXXXV. and XIX.) may be forwarded or retarded by a variety of circumstances, especially in the first birth, or a plurality of foetuses.

PHYSIOLOGICAL PART OF EXTRA-UTERINE GESTATION.

CCXIX. The Physiological Part of Extra Uterine Gestation explains its theories, so far as they differ from those of uterine gestation.

CCXX. The impregnated ovum then, instead of being conveyed into the womb, remains, it, in or upon its ovarium, probably from some extraordinary strength in the fibres of the connecting calix, or the
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furrounding peritonæum; or, 2dly, missing the mouth of the tube, it drops from the ovarium, into the cavity of the pelvis, or abdomen; or, 3dly, being received by the fimbriæ, it is entangled, and remains amongst them; or, lastly, it sticks, from its bulk, or want of sufficient peristaltic motion, in some part of the tube.

CCXXI. But wheresoever it is deposited, it seems endued with the power of adhering; accordingly the fine villous fibres of its surfaec strike root, as it were, into whatsoever substance or surface they are applied to, and thence absorb juices sufficient to nourish and enlarge the whole; though perhaps not so freely nor perfectly as from the uterus; whence the greater size of the placenta, and lesser of the ovum, with probably the death of the fœtus before it arrives at the full degree of maturation.

CCXXII. The period of extra-uterine gestation has been various and irregular, some women being seized with a species of imperfect labour at the end of nine months; others carrying the fœtus for

many years, but always dead after a certain period, either from the cause above mentioned, or from the withering of the secundines, or from the efforts of nature towards its expulsion.

PATHOLOGICAL PART OF UTERINE GESTATION.

CCXXIII. The Pathological Part of Uterine Gestation explains, 1. Those signs, or symptoms, by which it is known. 2. Those changes in the animal œconomy, which may prove the causes of disorder, and 3. Such general indications as may obviate the effects of these, and so prevent disease.

CCXXIV. The Signs or Symptoms of Uterine Gestation are generally irregular and various, not only in various women, but in the same women at different times. And are as follow—Slight tickling pain or disturbance in the region of the womb, or of the navel; nausea, or vomiting, chiefly in the mornings, or after food; a clamminess, or dryness of the mouth and
fauces;

fauces; sudden and capricious likings, or longings, for various articles of food, particularly acids, or absorbents, and sometimes even for unnatural and indigestible substances; as sudden and capricious dislikes to the same, or to tea, tobacco, &c. moroseness, drowsiness, slothfulness, dislike of coition, paleness, tawny colour, chiefly around the eyes; suppression of menstruation, without any other evident cause; fullness, swelling, and sometimes tension, with pains of the mammæ; darkness in the colour of the areolæ; hardness and swelling of the abdomen, arising slowly and gradually from the symphysis of the pubis, and extending upwards in a firm, elastic circumscribed tumour, to the pit of the stomach; a curvature of the spine and body backwards, to preserve the centre of gravity on the thighs, with a consequent waddling in the gait, and propensity to fall; motion in the distended abdomen, at first slight, and at distant intervals, but gradually becoming more strong and frequent, so as to give the fullest and clearest idea of the kicking, striking, pushing, thrusting,

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ing, and other various movements and contortions of the foetus; secretion of colostrum in the mammæ, with sometimes a slight distillation of it from the nipples; an increased sensibility and irritability of the nervous, with a diminished mobility of the vascular systems; a general plethora, more especially apparent in the venous system; a fizy state of the blood; a sediment in the urine; costiveness; a peculiar acuteness of visage, arising from a comparative thinness of habit, and distention of the mouth and eyes; and, lastly, a general heaviness and unwieldiness of the whole frame, attended with a degree of gravity of mind, and frequently a lowness of spirits.

CCXXV. Notwithstanding the number of the above symptoms, yet from their uncertainty, and often from their complication with more morbid appearances, it frequently becomes one of the most difficult points in midwifery to determine the absolute certainty whether a woman be pregnant or not. In this case recourse is necessarily had to the touch, (CCXC.) and
by

by it we judge, 1. From the weight of the womb poized on the finger, the woman being in an erect posture, with the stomach pretty empty. 2. From the distension of the fundus uteri, found in the hollow of the sacrum, difficultly through the vagina, but more easily through the rectum. 3. From the obliteration of the collum uteri (CXC.). And, 4. Perhaps from the elevated situation of the os tincæ, felt high at the brim of the pelvis, or altogether eluding the touch.

CCXXVI. The Changes in the Animal Economy, arising from Uterine Gestation, are principally reducible to these three heads, 1. An irritation of the womb, from its contents and enlargments; exciting sympathy in many of the other organs, particularly the stomach. 2. A general plethora, from the suppression of menstruation, producing those diseases which are known to arise from too great a fullness and distension of the vascular system, such as pains, aches, oppressions, congestions, obstructions, hæmorrhages, &c. 3. A compression

pression of the enlarged uterus against all the surrounding parts, producing inflammations in the compressed viscera, a disturbance of their functions, and interruption, not only in the regular course of circulation, but in the communication of the nervous influence.

CCXXVII. The General Indications, to obviate the effects of the foregoing causes are reducible to the following heads.

1. To compose and soothe the general sensibility and irritability of the system, the peculiar irritation of the womb, and the numerous sympathies arising therefrom: which is in general effected by avoiding all irritation capable of being applied externally or internally, either to the body or mind, through the medium of the non-naturals.

2. To obviate the effects of plethora, by an abstemious, temperate, and laxative course of diet; or to remove it, when excessive, by venesection.

3. To obviate the effects of compression, by the foregoing means, a very loose system of dress, and the greatest ease of body.

PATHOLOGICAL PART OF EXTRA-UTERINE GESTATION.

CCXXVIII. The Signs of Extra-Uterine are generally the same as Uterine Gestation for the first months, except where the ovum, forming a cyst, bursts its enclosure, when the woman generally dies suddenly, and except that the abdominal tumour and motions of the foetus in it are less regular, less central, and less circumscribed; whilst different parts of the foetus, particularly its head, are sometimes felt through the parieties of the abdomen; and if the womb is examined by the touch, it is found in the unimpregnated state. In some cases, a species of irregular labour appears about the natural period of Uterine Gestation, and after harassing the woman for a various space of time, goes off, and perhaps returns again irregularly. The motion of the foetus, being lost in its death, is often succeeded by irregular spasmodic motions of the intestines, with severe and excruciating

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ing pains through the abdomen, often terminating in inflammation, imposthumation, and ulceration, through which parts of the fœtus are wont to work their passage. There is sometimes an obstinate costiveness, and often a severe lax, attended with a tormenting tenesmus and stranguery; and parts of the fœtus are sometimes not only voided by stool, but work their way into the urinary passages. Whilst, in some very rare instances, the fœtus has been preserved by induration, when it receives the name of Lithopœdion. A variety of other irregular symptoms occur, according to the viscera chiefly affected, with their various sympathies. And, lastly, menstruation, which in the first months was suppressed, generally returns, sometimes regularly, and sometimes irregularly.

CCXXIX. The general indication is to obviate the symptoms.

THERAPEUTIC PART OF GESTATION.

CCXXX. The Therapeutic is that part of Gestation which teaches, 1. The nature

ture and medical treatment of those diseases to which gestation renders women liable. 2. Such rules as are necessary to be observed in the treatment of general diseases during pregnancy.

CCXXXI. Uterine gestation renders women liable to the following disorders, chiefly from the causes already mentioned.

CCXXXII. 1. Indigestion, which is a deficiency in the due concoction of the aliment in the stomach and intestines. 2. Cardialgia, or heart-burn, is an uneasy sensation of heat in the upper orifice of the stomach. 3. Loss of appetite is a want of the natural desire for food. 4. Pica is a depraved appetite. 5. Nausea is a sickness of the stomach, with a flow of saliva. 6. Vomiting, is the discharge of the contents of the stomach by the mouth. 7. Diarrhæa is a frequency of loose stools. And, 8. Costiveness is a deficiency of them.

CCXXXIII. The curative indications are, 1. To keep the stomach and intestines clean, by the mildest emetics and gentlest purga-

purgatives. 2. To absorb acidity by the testaceous powders, lime-water, &c. 3. To strengthen the fibres, by bitters, stomachics, and tonics. And, 4. To abate irritability by sedatives.

CCXXXIV. A Head-ach, from plethora, is removed by venesection, and cooling physic; from a foul stomach, by keeping that organ in a proper state.

CCXXXV. 1. A Tumefaction, tension, and pains of the mammæ are removed by gentle saline purges. 2. The tooth-ach, by opiates, especially applied externally. 3. Pains of the back and groins, from plethora, by venesection; from relaxation and weakness, by tonics and strengtheners, especially the cold bath.

CCXXXVI. Preternatural, or false menstruation, (XL.) seems to be a critical discharge of blood, frequently pale, and sometimes even white, from the vessels of the os tincæ, and vagina, appearing in small quantity, generally at the usual periods of menstruation.

CCXXXVII.

CCXXXVII. The indications of cure are, to remove plethora, by venesection, and gentle physic; and irritation, by opiates.

CCXXXVIII. 1. A Strangury is a frequent desire to discharge the urine, attended with uneasiness and pain in the urethra. 2. A Suppression is a total stoppage of that discharge.

CCXXXIX. The curative indications are, 1. To promote the discharge, by cooling diuretic purgatives. 2. To abate irritation, and remove spasm, by warm fomentations and opiates. 3. To remove any obstruction, by the introduction of the female catheter into the bladder.

CCXL. A Retroversion of the Womb, is the turning of the fundus of the womb, downwards, and backwards, against the coccyx and perinæum, and the raising of its cervix and orifice towards the pubes.

CCXLI. Besides the enlargement and change of situation in the first months, which act as the predisposing cause, the following operate as occasional causes of this disorder.—A sudden reduction of a

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prolapsus, or procidentia uteri; a violent shock, or agitation of the body; a sudden fright; strong efforts of the body, particularly to discharge urine, or fæces; and forced labour (CCLXXXVIII.).

CCXLII. The symptoms of this complaint are, a weight, pressure, bearing down, and pain in the pelvis; costiveness; obstinate constipation, and tenesmus; strangury, or obstruction, and suppression of the urine; a rupture of the bladder; and fever. A large round elastic tumour is found in the hollow of the sacrum, between the vagina and rectum, pressing against the perinæum and anus; whilst the os uteri is raised to the top of the pubis, and the neck of the bladder is dragged downwards and backwards.

CCXLIII. The indications of cure are,
1. To empty the bladder and rectum. 2.
To reduce the uterus to its natural situation, by relaxing and lubricating the parts with oily injections and fomentations; by placing the woman prone, with the shoulders low, and the breech raised; by pressing
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ing the tumour gently through the brim of the pelvis, with the fingers, in the vagina and rectum, alternately, or together; by pulling down the os tincæ; and, lastly, if it cannot be effected otherwise, by discharging the liquor amnii, either by introducing a probe through the mouth of the womb, or piercing its substance, and that of the vagina, or rectum, with a trocar. 3. To prevent a relapse, by supine posture, and elevation of the breech, with the use of laxatives, and strengtheners.

CCXLIV. A Hernia Uteri, is the passage of that organ, partly through the parietes of the abdomen, and its lodgement in the cellular membrane, between the skin and muscles.

CCXLV. Its causes are, besides the increase of the womb, extreme tension of the parietes of the abdomen; great confinement of dress; violent exertion of body; accidents, or strong labour.

CCXLVI. Its symptoms are a tumour without the cavity of the abdomen; pain, inflammation, strangulation, and mortifi-

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cation of the womb; and also the symptoms of intestinal and epiploic herniæ.

CCXLVII. The indications of cure are, 1. To obviate the symptoms. 2. To reduce the uterus to its natural situation within the abdomen, by emptying the blood vessels and intestines, and by gentle pressure upon the tumour, forcing it back through the passage from whence it issued; but, in case of strangulation, by breaking the membranes, and evacuating the liquor amnii, through the os uteri, if practicable, if not, by dilating the passage for the return of the womb.

CCXLVIII. The Hæmorrhoids, or Piles, are small tumours, generally filled with blood, about the anus, either externally or internally.

CCXLIX. The symptoms of these are, heat, itching, swelling, and pain about the anus; small tumours, sometimes hard and inflammatory, at others soft and fluctuating, rarely suppurating, and forming fistulas; costiveness, restlessness, fever, hæmorrhages from the parts affected.

CCL.

CCL. The indications of cure are, 1. To remove the plethora, by venesection and cooling purgatives. 2. To reduce the inflammation by the same means, by the use of leeches applied to the part, or by opening the tops of the tumours with the lancet or scissars. 3. To abate the pain by fomentations, cataplasms, ointments, and opiates. 4. To prevent a relapse, by gentle physic, especially sulphur; by moderate exercise, and topical strengtheners, in cases of great relaxation.

CCLI. Varices are distensions and elongations of the veins, from which they appear thick, black, and extremely crooked or serpentine.

CCLII. The indications of cure are, to promote the circulation through them, and to support their coats with bandages.

CCLIII. Anasarca Swellings of the lower extremities and pudenda, are tumefactions of these parts, from a transfusion of the thinner parts of the blood into the cellular membrane.

CCLIV. The curative indications are,
1. To promote the discharge of the thinner

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ner parts of the blood, by gentle purgatives. 2. To promote the absorption of the stagnating fluids, and the circulation of the blood by friction.

CCLV. Cramps are involuntary, continued, and painful contractions of the muscles; they are chiefly confined to the lower extremities, the hips and abdomen, and scarcely occur but in bed.

CCLVI. The method of cure is, 1. To remove all tendency to heat and fullness. 2. To divert the attention of the mind in conveying the nervous influence by the sudden application of cold, &c. 3. To obstruct the passage of the nervous influence into the muscle, by ligature above it, or by strong pressure upon it. 4. To abate the irritability by opiates.

CCLVII. Convulsions are involuntary reciprocal contractions and relaxations of the muscles, attended with an abolition of the internal and external senses. This disorder is highly dangerous and desperate, but more especially so, when the paroxysms are of long duration and frequent recurrence.

CCLVIII.

CCLVIII. The indications of cure are,

1. To remove plethora, and obviate the effects of violent agitation by copious venesection, cooling purgatives, and a spare diet.
2. To abate irritability, and soothe spasm by antispasmodics.
3. To excite the equal distribution of the nervous influence by nervous medicines and stimulants. And,
4. In the intervals of the paroxysms, especially if periodical, to strengthen the nervous system with the Peruvian bark and nervous medicines. But if these means prove unsuccessful, and danger urges, lastly, to remove the immediate cause by delivery (CCCCL.).

CCLIX. A Paralysis is the abolition of either sense or motion, or of both. It is chiefly partial, and confined to the lower extremities, or at most to a hemiplegia.

CCLX. The indication of cure is, to remove the obstruction of the nervous influence by venesection and gentle physic, if there is plethora; if not, by friction, generous diet, exercise, and strengtheners.

CCLXI. 1. Cough, dyspnæa, orthopnæa, and vomiting, in the latter months are pal-

liated by venesection, gentle physic, spare diet, and opiates. 2. Frequent micturition, incontinence of urine, and pendulous belly, by strengtheners, a supine posture, and a suspensory bandage applied to the abdomen.

CCLXII. A Hepatitis is an inflammation of the liver: and, 2. a Jaundice is an obstruction and absorption of the bile.

CCLXIII. The symptoms of the former are, pain in the region of the liver, with fever, both more or less acute, as the upper or under side is affected, and generally attended with tension, and foreness of the hypochondria, cardialgia, nausea, vomiting, and hiccup, costiveness, and lateritious sediment in the urine. The symptoms of the latter are, yellowness of the skin, the albuginia, and the urine, with a copious lateritious sediment of the last, want of yellowness in the fæces, with costiveness, anxiety, and oppression, loss of appetite, and itching of the skin.

CCLXIV. The indications of cure are, in the first, to reduce the inflammation, and moderate the fever, by venesection, cooling

cooling purgatives, saline juleps, and antimonials. In the second, to promote the excretion of the bile, and supply its want by saponaceous medicines, and opening bitters *.

CCLXV. An Uterine Hæmorrhage or Flooding, is a discharge of blood from the mouths of those vessels which open into the cavity of the womb.

CCLXVI. Besides the predisposing causes already mentioned, relaxation, especially from fluor albus, profuse menstruation, or former floodings; thinness and acrimony of the blood, or a diseased state of the organs, may be ranked under the head of causes; whilst the following generally act as occasional causes: 1. an increased circulation, arising from heat, exercise, passions of the mind, fever, or the abuse of stimulants, vinous or other strong liquors,

* The peritonitis, or inflammation of the peritonæum, also occurs sometimes in the latter months of gestation, it naturally therefore presents for consideration in this place, but as it becomes necessary to discuss it still more fully under the head of Recovery, an explanation of it will there be found (DLXXXI.).

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&c. 2. Violent concussions or shocks of the body, from jolting, falling, straining, coughing, sneezing, &c. 3. A spasm of the uterus or forced labour (CCLXXXVIII.), from irritation, 1. Idiopathic, as in injuries from blows, bruises, pressure, &c. or from gout, rheumatism, &c. 2. Sympathetic, as in colic, strangury, tenesmus, &c. 4. A dilatation of the os uteri, when the placenta is connected to its inside. 5. Perhaps an unequal increase of the womb and placenta.

CCLXVII. Its symptoms are, an irregular discharge of blood, generally copious, clotted, and increased by motion, inanition, paleness, debility, anxiety, quick respiration, coldness, especially of the extremities, shiverings, cold sweats, fainting, low, quick, fluttering pulse, palpitation, hiccup, convulsions, forced labour, abortion, or miscarriage.

CCLXVIII. The indications of cure are, 1. To remove the causes as far as necessary and practicable; as plethora and increased circulation by venesection in the beginning, and refrigerants, with the utmost

most ease of body and mind, and a supine posture; irritation and spasm by opiates; and relaxation by strengtheners and astringents. 2. To close up the mouths of the open vessels by astringents used internally; as red wines, Peruvian bark, tincture of roses, terra and tinctura Japonica, dragon's blood, alum, and acid elixir or weak spirit of vitriol; or externally, as cold applied to the loins and pudenda, or cold astringent injections thrown into the vagina. 3. To support the vis vitæ, and the great dispenditure, by the richest, most nutrient, and incrassating diet. 4. If these means prove successful, then to prevent a relapse, chiefly by a moderate continuation of them; but if unsuccessful, and the symptoms are urgent, 5. To promote the contraction of the womb by delivery (CCCCXLV.).

CCLXIX. Spurious or False Labour is a succession of slight erratic pains through the region of the womb, resembling those of real labour (CCLXXXII.).

CCLXX. Its causes are spasm of the uterus from irritation in its distension, external

pressure, or other injury, passions of the mind, or sympathy with other organs.

CCLXXI. The indications of cure are,
1. To remove the causes. 2. To abate the irritation by opiates.

CCLXXII. 1. Abortion is the delivery (CCLXXIX.) of the embryo or foetus before it has arrived at sufficient maturity to enable it to survive. 2. Miscarriage is the delivery of the foetus after that period (CXC VII.), but before the full term of gestation CCXVI.).

CCLXXIII. Their causes are most of the foregoing disorders, as well of generation as gestation, especially the two last, with all their causes; general disorder, either acute or chronic, especially general debility, relaxation, and irritability of the fibre; excessive rigidity of fibre; passions of the mind; the force of habit towards menstruation, particularly at the first periods after conception; the force of habit on the operations of the womb from frequent previous abortions or miscarriages; a premature dilatation of the os tincæ, from the wrong situation of the ovum when first de-

deposited, occupying the cavity of the column, instead of the fundus uteri (CXCI.); the death of the fœtus, either from external injury from the interruption of its circulation, through the umbilical chord, by pressure, knots, or circumvolutions; or from internal disease communicated by its parents, as lues venerea, small-pox, &c. or originating in itself.

CCLXXIV. The death of the fœtus is discovered by the following symptoms, a subsiding, softness, and coldness of the abdominal tumour and mammæ; sickness, faintings, rigors and cold sweats; the sensation of a heavy tumour gravitating in the abdomen; cessation of motion in the fœtus after quickening; a putrid discharge by the vagina, and evacuation of the liquor amnii, with forced labour (CCLXXXVIII.) and its symptoms.

CCLXXV. Abortion sometimes happens suddenly without previous symptoms, but both it and miscarriage are most commonly preceded or attended by pain of the back, sometimes the symptoms of a dead child, fainting, flooding, and almost always

ways by spurious and forced labour, with their symptoms.

CCLXXVI. The indications of cure are, 1. To remove the causes so far as is practicable; as the foregoing diseases by the foregoing means; and general diseases by the general means appropriated to them; especially relaxation and irritability by the cold bath and strengtheners; excessive rigidity and force of habit by frequent small bleedings, a spare diet, great quiet, and the use of opiates. 2. To obviate the effects, and to remove the causes of spurious and forced labour by opiates in full doses. 3. To give the necessary aid in delivery (CCCCXLIV.).

CCLXXVII. So far as the Diseases arising from Extra Uterine Gestation are similar to those now described, they are to be treated in the same manner; and as to any other irregular morbid appearances, they may be referred to the general rules of medicine, regard being always had to their cause, a removal of which by delivery (CCCCLXXVII.) can constitute the only radical cure.

RULES TO BE OBSERVED IN THE TREATMENT OF GENERAL DISEASES DURING GESTATION.

CCLXXVIII. The Rules necessary to be observed in the treatment of general disorders during pregnancy are reducible to the few following heads :

1. Moderate and flow evacuations are not only safe, but generally necessary.
2. Sudden or profuse evacuations are always dangerous, often fatal.
3. Repletion is seldom necessary ; if carried far, is always dangerous.
4. The milder emetics may be used with great caution, the stronger never.
5. The milder cathartics are always safe, generally useful, and often necessary ; the stronger purges are always dangerous.
6. Diaphoresis and sweat are promoted most safely by warmth, dilution, and antimonials ; diuresis by dilution and neutral salts.
7. Salivation ought never to be excited, though mercurials in small doses may be very safely administered.
8. Er-

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8. Errhines, with all other stimulants of the stronger degree, whether external or internal, are generally unsafe.

9. Cardiacs, carminatives, nervous medicines, and even most tonics are to be considered as a species of stimulants, which are more or less safe, according to the degree of stimulus they contain, and the degree of irritability in the system; but uterines or emmenagogues are stimulants, indubitably of the higher degree, and therefore always dangerous.

10. Astringents and simple bitters, with increasants, absorbents, and demulcents, are all safe.

11. Of all the narcotics, hypnotics, sedatives, antispasmodics, &c. opium is the first, and not only safe in itself, but it may be used with advantage in obviating the effects of stimulus in other medicines.

12. Acute diseases occur seldomer during gestation than at any other period; but when they do, are more dangerous, and are always to be treated antiphlogistically.

13. Some chronic diseases are relieved by gestation, as the phthisis pulmonalis, others

others aggravated, as the hysteria; and all are rather to be palliated than a radical cure attempted.

14. All surgical operations are to be postponed, until after delivery, if not absolutely necessary.

15. Even dangerous means are to be used, when the danger is greater in avoiding than in using them.

PART III.

DELIVERY.

CCLXXIX. The Third Part of Midwifery treats of Delivery; or the separation of the foetus and secundines from the mother.

CCLXXX. Delivery is of two kinds,
1. Natural. 2. Preternatural.

NATURAL DELIVERY.

CCLXXXI. Natural Delivery is the
expulsion or birth of a mature foetus and
K fe-

secundines, by the powers of labour, in a certain uniform course or order.

CCLXXXII. Labour is an effort of nature to expel the contents of the womb, principally by the muscular contractions of its fibres, assisted also in general, by contractions of the muscles of the abdomen, diaphragm, thorax, back, and extremities, and by a retention of the breath. This effort is formed into paroxysms, called Labour Pains; which, according to a variety of circumstances, are of various strength and duration, lasting from the space of a second, to that of several minutes, and recurring at irregular intervals, from a minute to an hour or longer.

CCLXXXIII. Labour is of two kinds,
1. Natural. 2. Forced.

CCLXXXIV. Natural Labour is that which comes on spontaneously, at the full period of gestation (CCXVI.).

CCLXXXV. The Cause of natural labour appears to be an irritation of the womb; but not arising as has been supposed—

1. From

1. From the motion of the foetus in turning for the birth ; as no such change of its position takes place.

2. From uneasiness and calcitration of the foetus, caused by want of nourishment, of air, or of room, by the stimulus of the liquor amnii on the skin, or of the meconium on the intestines ; since it is evident, that these do not act as stimuli upon the foetus ; and that when it is even dead, it is delivered by natural labour, as when alive.

3. From the withering or decay of those parts which connect the foetus and the mother ; since no such withering of the fecundines appears.

4. From the irritation caused by the extension of the fibres of the womb, beyond certain limits ; as it appears that there are no such limits set to their extension in this case.

5. From the irritation caused by the distraction of the fibres of the collum uteri, upon their total expenditure in its enlargement ; since no such distraction appears in fact or reason.

CCLXXXVI. But the irritation of the womb, which excites natural labour, seems to arise from that dilatation of its orifice, which must always begin to take place so soon as the cavity of the collum uteri is completely distended by gestation. The irritation of this dilatation then, it is supposed, first stimulates the fibres of the womb into a general spasm, or contraction. But this contraction again pressing, or propelling the contents of the womb against its orifice, increases the dilatation; and thus they act and re-act upon each other alternately, as cause and effect.

CCLXXXVII. Natural labour is generally preceded by the following symptoms.—Sinking of the abdominal tumour, and consequently hollowness of the stomach, and lightness in walking; softness of the mammæ, swelling and softness of the labia magna, with a mucous discharge from the vagina and os tincæ, sometimes tinged with blood; spurious labour, (CCLXIX.) now called preparatory, or prefaging pains.

CCLXXXVIII.

CCLXXXVIII. Forced labour is that which comes on at any period of gestation, or of delivery from any other cause than that of natural labour (CCLXXXVI.), as irritation of the womb, from external injury of any kind, from disease, from sympathy, from the motion or wrong position of the fœtus, or size of the ovum, from the death of the fœtus, &c.

CCLXXXIX. Labour is generally accompanied with the following symptoms. Heat; thirst; increase of pulse, in frequency, strength and fullness, redness of the face; sweat; sickness of the stomach, vomiting; horripilation; frequent micturition, strangury, or suppression of urine; tenesmus; involuntary discharge of fœces; pains of the back and loins, shooting down the thighs, spreading round the abdomen, or darting through the pubes; cramps; increased discharge of mucus, often streaked with blood; relaxation, dilatation, and extenuation of the os tincæ, with the propulsion of the membranes, in the form of a soft fluctuating bag, or tumour, or their rupture, with the evacuation of the liquor amnii, and the

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descent of the foetus; which last are to be known by the touch.

CCXC. The touch is that operation, by which the vagina and uterus, with their contents, are examined, by the introduction of one or more fingers.

CCXCI. The touch is best performed by introducing the fore finger, anointed, into the vagina, and occasionally into the os tincæ or rectum of the woman, either standing, leaning, reclining, sitting, or lying, in order to discover a variety of particulars, that have been, and will be occasionally mentioned.

CCXCII. The expulsion, or birth of the foetus, next happens, by the force of labour nearly in the following uniform course or order. — The repeated contractions of the womb relaxing, extenuating, and dilating its orifice; the membranes, generally filled with waters, in form of a soft tumour, now turgid in the time of a pain, and then flaccid in the interval, are propelled through it, whilst the head may be felt at some distance, at first through the vagina and uterus, and next through
the

the membranes. It is known to be the head by its size, solidity, smoothness, equality, rotundity, and seams (CLXV.). The vertex is the part that presents or offers to the birth, in the brim of the pelvis, one ear lying towards the sacrum, and the other to the symphysis of the pubis, and the face towards either ilium, whilst the chin is pressed in upon the breast, and the shoulders extend diagonally nearly across the pelvis, above its brim.—In this position the head enters the pelvis, and is pushed into the mouth of the womb, whilst the membranous bag of water precedes it, and in some measure helps to dilate the passage; but the membranes being slender, are wont to be torn, or burst, according to a variety of circumstances, at various periods of the labour, and in various parts of the passage; though it sometimes happens that they do not give way until the ovum, being separated from the womb, is expelled whole and entire. At other times the head of the foetus, being closely applied to the membranes, no fluctuation or gathering, as it is called, of wa-

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ters is perceptible between them, but the membranes however are discernible from the hairy scalp by their smoothness; and they are generally ruptured by the head in the passage, and sometimes tearing around the pelvis, a portion comes off upon the head, like a night cap, and gets the name of cawl. In the mean time the head continues to be advanced gradually in its passage, but meeting resistance as it comes to the bottom of the pelvis, from the change in the dimensions of this cavity, it being narrower there from side to side than from before backwards, the head must necessarily alter its position, which is effected by the mere mechanical force of the labour, the forehead being forced where it meets least resistance, viz. into the hollow of the sacrum, and the vertex into the arch of the pubes. This turn of the head again brings round the shoulders to present fair at the brim of the pelvis, or from ilium to ilium. The forehead is now pressed against the coccyx, which it forces backwards, and thus somewhat enlarges the pelvis, whilst the space between that
and

and the vertex is thrust against the anus and perinæum, the rectum being generally emptied by the pressure of the head along it. The anus is now forced open, and the perinæum considerably stretched and extenuated, whilst the vertex begins to appear in the external orifice, and the labour encreases. All is now pain, agony, tremor, and expectation.—But there is the greatest variety between the facility and difficulty with which the head passes the external orifice. In some women of lax habit, &c. it glides through with the utmost ease, whilst in others, especially of the first child, or of a considerable age, or of a rigid and irritable fibre, the difficulty and delay is not only great, but the pain is inexpressible; the manner however in all is the same; the head is thrust powerfully against the anus and perinæum, which are still more and more extenuated during every pain, but, in the interval, the head retiring as it were backwards, leaves them to their natural contraction; at length, after a various space of time, the occiput having got below
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the arch of the pubes, the propelling overcomes the resisting force, and the vertex slips through the external orifice, the perinæum, thin and expanded, sliding down over the face, and the head making a round turn backwards upon the arch of the pubis. As in the bursting of an abscess, there is instant ease; and the inexperienced patient, thinking herself delivered, all is tumultuous joy and happiness.

CCXCIII. But the body yet remains, which however being smaller than the head, and the passage already much enlarged, generally follows without difficulty. After a moderate respite from pain, in which the face of the child is generally turned from the perinæum to either side by the turning of the shoulders, now arrived at the bottom of the pelvis, from the ischia to the coccyx and pubes the body is also completely excluded by the force of a pain or two, and generally accompanied or followed by a plentiful gush of water, mixt with blood and glairy mucus.

CCXCIV. After a farther respite of a few minutes, in which the cessation of
pain

pain probably yields the highest sensations of pleasure, the uterus once more renews its contractions; but they are now so moderate as scarcely to be perceptible; the effects however are important: the placenta and membranes are first separated, or detached from its surface, by which those vessels which open into its cavity, although somewhat lessened in their diameters, are yet left patulous and open; a copious discharge of blood is the result, but it is of short duration, for the womb still contracting, not only expels the secundines, and such coagula of blood as are formed, but in a short time reduces the discharge within the bounds of safety and moderation.

CCXCV. Such is the progress of a natural delivery, being generally completed in a few hours, mostly from two to twelve of real labour; sometimes even within less to the space of a few minutes, and that with scarce any thing of force that can be called pain; and at others, especially in first births, or aged women, extending to
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the space of twenty or twenty-four hours, or even longer.

CCXCVI. It only remains to examine what aids nature, in this important and astonishing operation, requires from art. They are few indeed, and perhaps might be mostly, is not altogether spared. They are reducible to the following heads or indications.

1. To support the muscles in their action with as little fatigue as possible to the patient; by placing her in the most advantageous and commodious positions. At first, her dress being light and easy, she may bear her pains sitting, standing, leaning, reclining, or lying, and may vary the position so as to make it most agreeable, until the labour being well advanced, delivery may be soon expected; then the following posture seems best adapted for all purposes: let her lie in bed, with her breech close to its side, or a little projecting, her shoulders raised and bent forwards, her knees drawn close to her belly, and separated by a pillow, with the feet
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and hands supported by assistants, and the back by one hand of the operator; for this purpose the bed is to be prepared with oil cloth, dressed skins, or folded cloaths, to keep it and the woman clean and dry.

2. To support the strength and spirits, and at the same time obviate fever, by a cool air, thin tepid drinks, and light food, and by the most soothing and encouraging language.

3. To examine the progress of the birth by the touch from to time.

4. To lubricate the passage with oil, lard, pomatum, or butter, especially if there be any tendency to dryness.

5. To obviate laceration in the perinæum and anus, by supporting them with the palm of one hand during their protrusion and extenuation.

6. To receive the infant as it is born, and protect it from injury and the inclemency of the air, by wrapping it in a receiver, adapted to the climate and season.

7. To examine whether there is a remaining foetus in the womb; by feeling the abdomen, or by the touch.

8. To

8. To separate the infant from the secundines, as soon as the circulation between them has ceased, but not sooner; by tying the umbilical chord, with a pretty thick ligature, within two or three inches of the abdomen; and cutting it asunder by scissars, within one inch of the ligature, nearer the placenta.

9. To direct the secundines in their expulsion, and perhaps to expedite it moderately, by rolling the chord around the fingers of one hand, and pulling it gently and cautiously with the other.

10. To prevent the rushing of too much cold into the uterus; by closing the external orifice, immediately after the passage of the secundines and applying a warm cloth to it.

11. To obviate the effects of sudden revulsion; by applying a proper bandage around the woman's abdomen, immediately after delivery.

12. To obviate the effects of fatigue, by an easy posture, and a gentle cordial; and those of the cold and wet that may have been applied, by an early change of
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of linen, and the removal of all foul cloaths.

PRETERNATURAL DELIVERY.

CCXCVII. Preternatural Delivery is the separation of the foetus or secundines from the mother, in any manner essentially differing from, or out of the ordinary course of nature already described (CCXCII. &c.).

CCXCVIII. Preternatural Delivery is reducible to four heads: 1. Slow. 2. Instrumental. 3. Of wrong presentation. 4. Complex.

CCXCIX. A Delivery is Slow, when the birth of the foetus, notwithstanding its natural presentation, is retarded beyond that usual and moderate space of time in which it is naturally completed (CCXCV.).

CCC. When Delivery is slow, the woman generally becomes more hot, thirsty, anxious, uneasy, restless, and low-spirited than in natural labour; her head aches; there is a bad taste in her mouth; her stomach is sick; she frequently vomits; her
appetite

appetite is lost ; she is obstinately coſtive ; and her urine is frequently ſuppreſſed ; ſhe toſſes inceſſantly, and finds reſt or comfort no where, until nature being exhausted, ſhe frequently ſinks into doſes of ſleep in the lengthened intervals of her pains, whoſe force and ſtrength are now much abated, or altogether vaniſhed ; after ſome reſpite, ſhe is aroſed from her imperfect ſlumbers, and labour acquiring new ſtrength, either executes its intention, or again exhausts her as before. Nature once more reſreſhed, perhaps with balmy ſleep, revives to action, which it again renews with freſh vigour, and at length, perhaps after ſeveral ſuch interruptions, or broken intervals, by the mere virtue of obſtinate perſeverance, triumphs in victory. During this tedious and painful ſtruggle, the child's head either advances ſlowly, in an imperceptible progreſſion, or ſtops occaſionally at various parts of its paſſage, whiſt the bones of the cranium are generally ſo far compreſſed, as to cauſe the overlapping of their edges, with the gathering of a conſiderable tumour upon the vertex. At other times

times the labour continues constant, without respite, and sometimes even acquires force from its progression, until it has strenuously overcome all its difficulties.

CCCI. The Causes of slow delivery are as follow.

1. A weakness or interruption of the labour, arising from any preceding or present disease whatsoever; from passions of the mind; from mismanagement in the time of labour, especially by fatigue, heat, and abuse of cordials, vinous or strong liquors, and by fruitless and injurious endeavours to dilate the parts.

2. A premature evacuation of the liquor amnii, or its too long retention from the rigidity of the membranes.

3. An extraordinary size of the child's head, either from the general bulk of the whole foetus, original disproportion, disease.

4. An intire ossification of the foetal cranium.

5. An obstruction to the passage of the child's head, from a rigidity of the parts, arising from youth or advanced age, a ge-

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neral rigidity of the fibre, partial constriction, either occasioned by preternatural formation, or preceding inflammation, hardened fæces in the rectum, hæmorrhoids, distention of the bladder with urine, stone in the bladder, fungous tumour in the vagina, inflammation and tumefaction of the vagina and pudenda from injudicious and injurious exertions to expedite delivery, hernial tumour in the pelvis, from the descent of the intestines between the vagina and rectum.

CCCII. Several other causes of slow labour have been laid down by authors, but without sufficient foundation; as obliquity of the womb, or contraction of its orifice upon the neck of the fœtus; death of the fœtus; length of the umbilical chord entangling, or its shortness retracting the fœtus, &c. &c. and other occurrences have been also mentioned, which more properly belong to other heads, as wrong presentation of the head (CCCXCIX.), attachment of the placenta over the os uteri (CCCCXLVII.), &c.

CCCIII.

CCCIII. The Indications of Aid in flow delivery, are,

1. The same as in natural delivery (CCXCVI.).

2. To remove the causes as far as is practicable, viz. weakness of labour from debility of body; by nourishing light diet, with wine and cordials in moderation: interruption of labour from passions of mind and mismanagement; by comfort, refreshment, and rest: premature evacuation of liquor amnii; by lubrication: and its retention; by rupturing the membranes, not however until the passage is sufficiently dilated, and the head low in the pelvis: obstruction from rigidity; by frequent lubrication, fomentation, and gentle dilatation by the fingers: from fæces; by glysters occasionally repeated: from hæmorrhoids; by glysters and fomentations: from distention of the bladder; by the use of the catheter: from a stone in the bladder; by raising it upwards above the brim of the pelvis, by one or two fingers pressed along the course of the urethra, or by the introduction of the ca-

theter into the urethra: from a hernial tumour; by emptying the intestines, and reducing them into the natural situation: from a tumefaction of the pudenda; by reducing it with fomentations and venesection.

3. To assuage all unnecessary pain; to promote refreshing rest, and at the same time relax the parts, by the use of opiates and glysters occasionally repeated.

CCCIV. Thus, in the space of, from one, to that of perhaps three, or even four days and nights, by patience, perseverance, and the unremitting application of the foregoing means, as they may be variously required, the foetus is at length expelled by the force of labour, in the same manner as described in natural delivery (CCXCII. & seq.); the head, however, being in general more compressed, is considerably elongated, and the soft parts of the mother are sometimes confused between its cranium and the bones of the pelvis.



IN.

INSTRUMENTAL DELIVERY.

CCCV. Instrumental Delivery is the separation of the foetus from its mother, chiefly by the use of instruments, which, however serviceable, and even necessary they may be found, have certainly been liable to some abuse.

CCCVI. But the abuse of instruments may be avoided by attending to the following general rules :

1. Instruments are never to be used but in cases of absolute necessity, where nature or art are otherwise found insufficient to save both mother and child.

2. The easiest and safest are generally to be first tried ; and no unnecessary instrument whatsoever is to be employed.

3. In the use of blunt instruments, neither mother nor foetus are to receive the least injury from them.

4. When the foetus suffers, the mother is to be preserved perfectly uninjured, and vice versa.

5. All instruments should be concealed entirely from the knowledge of the patient, and as much as possible from that of the bystanders.

CCCVII. Instrumental delivery, according to the mode by which it is performed, is reducible to three heads: 1. By the forceps. 2. By the scissars and crotchet. And, 3. By the Cæsarean operation.

DELIVERY BY FORCEPS.

CCCVIII. Delivery by the Forceps, is the extraction of the child's head by means of an instrument so called, from its resemblance to a pair of tongs.

CCCIX. The Forceps used in delivery consists of two pretty long crooked sides, each divided into the handle, the axis or lock, and the clam or blade. As invented and first used, the instrument was large, heavy, unwieldy, and incommodious; as now improved, after a multiplicity of endeavours, it is much shorter, lighter, safer, and more commodious. The following shape and dimensions seem best adapted

adapted for all purposes; length of the handle, from four, to four and an half inches; of the blade, with one only curve, divided into two ribs, and rounded in a bow at the point, from six to six and an half inches; distance between the ribs of each blade, from the centre to the points, an inch; near the lock, where the blade begins to divide, half an inch; covering the instrument with thin soft leather, prevents it from clattering by collision, and perhaps from marking the head of the child; and furnishing it with a stop or kind of nail to pass from one handle to the other, at their extremities, serves the excellent purpose of preventing too much pressure upon the head of the child, besides uniting the handles better than a ligature.

CCCX. Before the invention of this useful instrument, about the middle of the last century, no effectual means had been discovered to extract the head before the body without injury, when nature failed, as the lacks and fillets, both of ancient and modern invention, had been, and still are

found extremely imperfect and insufficient; and the Arabian forceps of different kinds, delineated by Albucasis, seem still more unfit for the purpose, and the speculum matricis much worse.

CCCXI. The Causes which render delivery by the forceps necessary in natural presentations of the head, are the same as in slow delivery (CCCI.), only in so great a degree as to prevent the expulsion of the foetus by the force of labour, until the life of the mother, or of the foetus, or of both, is affected with danger.

CCCXII. The danger of the mother from slow delivery, is discoverable from her natural constitution; her general debility; the debility of her labour; the weakness of her pulse; the length of the labour, with its strength or severity during that time; the space elapsed from the entrance of the head into the pelvis, and rupture of the membranes; her respiration; her voice; her countenance.

CCCXIII. The danger of the foetus in slow delivery, is principally to be collected from the length of time which its
head

head remains pressed in the pelvis; with the violence of this pressure, discernible from the force of the labour, the overlapping of the bones, and the size of the tumour upon it.

CCCXIV. Either the mother, or the foetus, or both, being judged in danger, the forceps is next to be applied, under the following general rules, and in the following cases.

CCCXV. General Rules for using the Forceps :

1. The forceps is applicable to the head only.

2. It is never to be used until the passage is sufficiently dilated, either by nature or art.

3. The passage and blades of the instrument, as well as the hands of the operator, are to be well lubricated.

4. The rectum and bladder should be emptied.

5. The position of the head should be accurately known, both by considering its natural situation in the different parts of the pelvis, and by introducing a finger or two,

two, or the whole hand if necessary and practicable, between it and the pelvis, and feeling all around with the fingers the distinguishing marks upon it, as the seams, the fontanelles (CLXV.), the occiput, the face, and especially the ears, which alone, by the raising of their back part, easily discover the exact situation of the head.

6. A blade of the forceps should always be applied over each ear of the foetus, because it thus takes the firmer hold, and is least liable to injure either mother or child.

7. The hand of the operator should always be introduced between the child's head and the pelvis, when practicable without injury to the mother, as a conductor for the blade that is to be introduced, as well over the ear, as within the mouth of the womb. But when it is found impracticable to introduce the whole hand as a conductor, one or two fingers must answer the purpose, or the blades may be introduced to the sacrum, and brought gently round to the sides, when the ears are to each ischium.

8. If

8. If the point of a blade stops against the ear, that blade should be a little withdrawn, and its point a little raised, by pressing the handle to the opposite side, and should the point of a blade by any means slip on the outside of the os uteri, that blade is to be immediately retracted a little way, and the point pressed more close to the child's head, so that it may be with certainty insinuated between it and the womb.

9. When one blade is more difficultly introduced than the other, the difficult blade should always be applied first.

10. It is more difficult to introduce a blade between the child's head and pubes, than between it and the sacrum or ischia.

11. The blades are easiest introduced at the ischia, as the woman lies on her back, with her breech over the bed's edge, and her shoulders and thighs supported by assistants. But they are easier introduced between the sacrum and pubes, when lying on her side, as in natural labour, or rather more across the bed.

12. When

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12. When there is difficulty, the blades are best introduced by the operator kneeling on the knee opposite to that hand or blade which he introduces, and supporting the elbow of the hand in use on the knee of the same side ; but when there is not difficulty, they may be introduced sitting.

13. When the blades are applied from side to side, and the woman lies on her back, the operator's right hand blade is to be introduced first, that sufficient room may be left for the introduction of the other between its handle and the pubes.

14. In introducing the blades, the handles should always be pressed close against the perinæum, to keep the points from striking against the jetting in of the sacrum, and to preserve the direction of the instrument as near as possible in the axis of the pelvis.

15. The farther the head is advanced into, or through the pelvis, the easier is the application of the instrument, and the consequent extraction, and vice versa.

16. The blades are either to be introduced, or immediately brought exactly opposite

posite to each other, when the handles are to be pulled across, or decussated, and locked, without pinching the parts, or making a noise; to prevent both of which, the lock should always be surrounded by the fingers.

17. The handles are then for the most part to be united, either by the proper stop (CCCIX.) or a ligature.

18. The forceps being thus firmly fixed on the head, the handles are to be grasped with both hands, and an equal, powerful, pulling force applied always at the time of the pain, if there is any, and in the due direction of the pelvis, moving the instrument gently from blade to blade, and imitating as much as possible the force and pressure of natural labour pains, with their necessary intervals of rest.

19. In bringing the head through the pelvis, it is almost constantly necessary to give it the precise same turns that it takes in a natural delivery, but no more; and in bringing it through the external orifice, one hand should always support the perinæum.

20. Should

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20. Should the forceps slip or lose their hold at any time of the operation, they are to be cautiously withdrawn separately, and introduced again as before.

21. As soon as the head is extracted, the forceps is to be removed, and the delivery terminated as in natural labour, except that it is sometimes necessary to extract the body also by art.

22. The body is extracted, when necessary, by taking a firm hold of the head with both hands, the palms of which are to be extended along the ears, with the thumbs on the vertex, the forefingers surrounding the occiput, and the rest of the fingers under the chin; or the forefingers may be inserted into the arm-pits, and the body being by a sufficient force brought down, by pulling towards the perinæum, a shoulder is to be turned round to it, whilst the other is brought out under the arch of the pubis.

CCCXVI. The Cases in which the forceps is applicable in the natural presentation, are reducible to these three that follow.

CCCXVII.

CCCXVII. The first forceps case is when the head sticks at the perinæum or external orifice, or remains very low in the bottom of the pelvis; the ears are to the ischia, and the face to the coccyx.

CCCXVIII. The extraction of the head in this case is often so easy, that when there is moderate labour, it may be effected with a single blade of the forceps used as a lever; which seems preferable to that of Roonhuyse, or any other yet discovered. If the woman lies already on her side, there is seldom occasion to remove her from it; nor is there occasion either, generally, to unite the handles of the forceps by ligature, even when the introduction of both blades is deemed necessary; but the blades, being applied over the ears, the head may be readily extracted, by pulling it, first sufficiently against the perinæum, so as to stretch it and the anus, supporting them however with the palm of the hand until the occiput is felt below the arch of the pubis, and then by giving the head its natural turn around this arch, sliding at the same time the perinæum over the

face, and pressing the handles of the forceps to the abdomen of the mother; which turn is easier effected if the woman lies on her back, by the operator's rising at that instant from his knees.

CCCXIX. In the second forceps case, the vertex is descended to the coccyx, the ears are past the brim of the pelvis, with the one lying to the sacrum, the other to the symphysis of the pubes, and the face to either ischium.

CCCXX. When the face is to the right ischium, the woman being laid on her left side across the bed, the right hand blade is to be first applied between the child's head and the pubes, and next the other between it and sacrum, sliding it gently over the lock of the first; when the handles, being united, are to be firmly grasped in both hands, and by being twisted gently and cautiously from right to left, as far as the quadrant of a circle, until the right hand blade is brought directly opposite to the left ischium, the child's face is to be turned into the hollow of the sacrum, pulling the head gently forwards at the same time,
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if it is not quite sufficiently advanced for that purpose. Being thus reduced to the first forceps case, it is to be extracted accordingly. When the face lies to the left ischium, the position of the woman and other circumstances just mentioned are to be varied accordingly.

CCCXXI. In the third forceps case, the head is in the brim of the pelvis, with its most bulky part either not fairly entered into it, or not entirely past it; one ear being to the spine or sacrum, the other above the symphysis of the pubes, and the face to either ilium.

CCCXXII. This is a much more difficult and precarious case of the forceps than the last, and should not therefore be attempted, in expectation of its becoming more practicable by the descent of the head, until the danger of the mother is more imminent, as the danger of the child is generally less. But the forceps being at length applied when absolutely necessary, according to the general rules (CCCXV.), as well as those laid down in the second case, and locked generally in

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the vagina, except where the pelvis is shallow, and the woman thin, the head is to be brought, by a sufficient force, first fairly through the brim of the pelvis in the natural direction, as it presents, until the vertex is descended as far as the coccyx; by which means it is reduced to the second case, like which it is to be extracted.

DELIVERY BY SCISSARS AND CROTCHET.

CCCXXIII. Delivery by the Scissars and Crotchet is the extraction of the foetus chiefly by means of the instruments so called.

CCCXXIV. The Scissars used in delivery are about nine inches in length, the blades about three, and the handles with their bows, six; their points ought to be sharp, and their blades furnished with stops, which should be very small, as processes or knobs may prove injurious to the parts of the mother. Attempts have been made to improve them, by giving them various curves, but in vain. When formed
without

without sharp edges, they are not amiss, but as described, they answer their purposes of opening the child's head, and of a cutting instrument in the womb, not only better than in any other form, but better than any instrument of ancient or modern invention, as the various bistories, scalpels, darts, spears, screws, tire-têtes or perforators.

CCCXXIV. The Crotchet is a pretty thick strong hook, at the extremity of a single stalk of iron, furnished with a handle; the stalk was originally straight, until it was materially improved, by getting a curve similar to that of the forceps, since which it has been in vain endeavoured to improve it still farther by a second curve, and by joining it with a fellow like the forceps, but it answers its purpose of taking hold of the dead foetus better than any other instrument, whether dart, spear, screw, tire-tête, griffin's claw, eductor, blunt hook, or small forceps; and may be used safely as to the woman, without any sheath, cover, or spring.

CCCXXV. The cause which renders delivery by these instruments absolutely necessary in natural presentations, is the narrowness or distortion of the pelvis in so great a degree, as to render delivery by more favourable means absolutely impracticable, until the life of the mother is affected with great danger, or the foetus is dead.

CCCXXVI. A knowledge of the danger of the mother is to be collected from the same signs as in delivery by the forceps (CCCXII.).

CCCXXVII. The death of the foetus during labour is discoverable,

1. From the signs of its death during gestation (CCLXXIV.).

2. From a want of pulsation in the umbilical chord, if felt for a short succession of time.

3. From a softness of the head, and looseness of its bones.

4. From a softness and easy separation of the integuments.—Many other signs mentioned by authors, such as foetor from the parts, want of motion, want of pulsation

tion in the temporal or radial arteries, coming away of the meconium, &c. being equivocal and uncertain, are not to be depended upon.

CCCXXVIII. The different means of flow and forceps delivery, then, having been, as far as was requisite, attempted, without success; delivery by the scissars, or by the scissars and crotchet, is to be effected under the following rules.

CCCXXIX. General Rules for the Use of the Scissars and Crotchet:

1. The prime intention in the use of the scissars is to lessen the bulk of the part that is to be extracted; and of the crotchet, to take a firm hold of it when it has been so lessened.

2. The scissars are principally necessary in lessening the size of the head, by opening the cranium, destroying the connexions of the brain, so that it may be easily evacuated, and the head materially reduced in its dimensions.

3. The scissars are also useful in lessening the size of the shoulders, by cutting off the arms; or that of the abdomen, by

opening it. In short any parts of the foetus may be safely, as to the woman, cut or separated by them in the womb or in the pelvis.

4. Whenever either of these instruments is to be introduced, it should be done along the hand, which is to be previously introduced as a conductor, and should never quit the point, until it is buried in some part of the foetus; when the crotchet is withdrawn, the same caution is necessary.

5. The same preparation and position of the woman will generally answer in scissars as in forceps cases (CCCXV.).

6. The operator should mostly kneel, as in forceps cases (CCCXV. 12.).

7. The head and body of the foetus are to be extracted through the pelvis, as nearly in the course and direction of natural delivery as possible (CCXCII. &c.).

CCCXXX. The natural presentation of the head affords but one true crotchet case, which is as follows:

CCCXXXI. The vertex presenting right, at the brim of a very narrow or distorted

torted pelvis, incapable of suffering the head to pass even with the assistance of the forceps, but capable of admitting the passage of the hand, being judged by the touch to measure from two to three inches at its narrowest part, which is generally from sacrum to pubis; and the woman's life affected with danger.

CCCXXXII. The operator's left hand being introduced as far as the head of the foetus, is to conduct the point of the scissars to it, where being pressed against the most obvious part, the integuments and cranium at the lesser fontanelle, or sagittal seam, are to be pierced by a rotatory motion of the scissars in the right hand; when they are thus pressed into the cranium as far as the stops, the left hand is to be withdrawn, and the bows of the scissars being grasped, one in each hand, are to be drawn forcibly asunder, as far as the arch of the pubis and the perinæum will permit; a finger and thumb of the right hand being then placed in the bows, the fingers of the left are to be introduced, part on each side of the blades of the scis-

fars as far as the stops, when the scissars
 may be safely closed, and being turned
 with a bow to each ischium, are to be
 opened, and closed as before, so as to form
 a pretty large crucial opening through the
 cranium: they are then to be thrust into
 the brain beyond the stops, as far as the
 axis, and turned in various directions, so
 as to break down and destroy the whole
 contexture of the cerebrum and cerebel-
 lum, with those membranous processes
 which support and connect them. They
 are then to be withdrawn and laid aside,
 and a hand being introduced, the ragged
 and torn pieces of the parietal bones are to
 be separated from the integuments, and
 withdrawn, piece by piece, nay most part,
 or even the whole of these bones, with the
 frontal and occipital bones, may also, if the
 extreme narrowness of the pelvis requires
 it, be broken down, and being separated,
 may be brought away with the fingers.
 The brain is next to be evacuated, which
 may be partly done by the fingers, but is
 much more perfectly effected, by the use
 of a common pewter spoon, with which it
 may

may be scooped out, almost totally and entirely, with expedition and ease.

CCCXXXIII. The head being thus materially reduced in its size, if the pelvis be not extremely narrow, may be now brought down with a firm grip of the hand introduced for that purpose; but should it resist that force, the crotchet is to be next applied.

CCCXXXIV. The method of using this instrument, in all cases whatever, was formerly as follows: one hand being introduced between the sacrum and the head, the crotchet was pushed gently along it by the other, until the point was conveyed as far as the base of the head on its outside, where being turned cautiously, and fixed through the integuments into the bone, the hand was brought round opposite to it, where taking a firm hold of the head, a pulling force was applied in the direction of the pelvis, sufficient to bring it down; remembering at the same time, to give it those turns which it would naturally make, and which are still useful, if not necessary. If the crotchet gave way, ei-
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ther by slipping, or what was much more common, by tearing the bone along with it, then it was refixed higher up as before, and the torn fragment of bone brought off with the fingers. It has been found, however, much easier and more expeditious to introduce the crotchet into the opening made in the cranium, and taking as firm a hold of the bones as possible, applying the other hand at the same time on the outside of the skull, opposite its point, to bring away the head as before.

CCCXXXV. The head being at length, with more or less difficulty, extracted, a firm hold is next to be taken of the neck, which is to be pulled towards the perinæum, with a sufficient force to bring down the body in its natural direction. Should the pelvis however be extremely narrow, and the shoulders stick in the passage, then a hand being introduced between the breast of the foetus and the sacrum, the crotchet is to be introduced along it, and fixed, if practicable, upon the sternum, if not, upon the ribs, the hand being withdrawn, the operator is then to pull the
neck

neck and the handle of the instrument together, with an equal powerful force, so as to bring down the shoulders through the pelvis. Should the sternum or any of the ribs be torn out, they should be twisted off and withdrawn, lest they might injure the parts of the woman; and the crotchet, if need be, may be applied higher. Should the arms obstruct the passage, they may be readily taken off at the articulation of the humerus, by introducing the scissars along the fingers just upon it, and snipping with their points, so as to cut into the joint and separate the arm.

CCCXXXVI. The shoulders and thorax being thus brought down, the rest of the foetus generally follows, even through the narrowest pelvis; but should its hips stick in the passage, the crotchet may be once more introduced, and being fixed between the thighs into the child's pelvis, with a joint hold of the spine, it will at length terminate the delivery of the foetus*.

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* It has of late become fashionable in practice, when the head has been opened, and the brain evacuated,

DELIVERY BY THE CÆSAREAN OPERATION.

CCCXXXVII. Delivery by the Cæ-
sarean Operation, is the extraction of the
foetus and its fecundines, through an in-
cision made into the cavities of the abdo-
men and of the womb.

CCCXXXVIII. The only cause which
can render this incision absolutely neces-
sary, is the extreme narrowness or distor-
tion of the pelvis prohibiting all possi-
ble delivery through it by any means hi-

ated, to suffer the remainder of the delivery to be ef-
fected by labour, or, if this is insufficient, to postpone
it for some hours or longer, in order to suffer the bones
of the cranium to collapse and be pushed forward, and
the woman to be refreshed. But this delay seems to-
tally improper: 1. Because the opening of the head
should not be attempted whilst the woman is capable of
bearing so much longer labour, under the expectation,
or the hope at least, that the effects of so much farther
delay might possibly bring it within reach of the forceps.
2. There is no necessity for greatly fatiguing or ex-
hausting the woman in opening the head, or even in
bringing it down, provided it be sufficiently reduced in
its size. 3. If any inflammation has taken place, the
foreness will be greater after the delay. Lastly, Bad
symptoms and accidents may occur during the delay.

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therto laid down ; which is sufficiently obvious to the touch, and from its denying admiffion to the hand of the operator.

CCCXXXIX. The instruments neceffary to perform this operation are extremely fimple, viz. a convex fcalpel, a crooked knife with a blunt point, and a few needles for taking up arteries, and making futures.

CCCXL. All poffible delivery through the natural paffage being utterly precluded, to give either mother or foetus the fmalleft hope of life, the intention muft be to procure an artificial paffage through the parietes of the abdomen, and the fubftance of the womb, by an incifion, which the earlier in labour it is performed, muft give the more rational hope of fuccefs, and vice verfa.

CCCXLI. To prepare the woman for this purpofe, the bladder and inteftines fhould be empty, and her fpirits duly fupported by moderate cordials : fhe fhould be laid upon her back on a narrow couch, or upon a table, and well fecured from any fudden motion, by affiftants.

CCCXLII.

CCCXLII. The abdomen being bared, the incision is to be made through the most prominent side, near the navel, at the farther edge of the rectus muscle, and in a longitudinal direction; parallel to the linea alba, extending in all about seven inches, three above and four below the navel.

CCCXLIII. The uterus being thus laid bare, and any considerable branch of an artery that may have been cut, taken up, an incision is also to be made through its substance, in the same direction, and nearly as long as the former, but as near to the center of its fore part as possible, and also as high towards the fundus.

CCCXLIV. Should the placenta happen to adhere to that part of the womb which must necessarily be laid open, it is either to be immediately separated and withdrawn, or perhaps it may be better cut through with the womb, and separated after the delivery of the foetus.

CCCXLV. On the instant after the incision is made through the womb, the foetus is to be lifted out of it, and the secundines being gently separated from it, are

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to be extracted by the operator ; whilst proper assistants hold the infant, tie, and divide the chord, &c.

CCCXLVI. Should the intestines or omentum be protruded at any period of the operation, they ought to be immediately reduced and retained within the abdomen, by the hands of an assistant.

CCCXLVII. The quick contraction of the womb sufficiently restrains its hæmorrhage, and closes its wound, so that no farther attention to it is now necessary, than to sponge up the extravasated fluids in the abdomen, which being done as speedily as possible, the external incision is to be closed by a proper future, and otherwise treated according to the known rules of surgery.

DELIVERY OF WRONG PRESENTATION.

CCCXLVIII. Delivery of Wrong Presentation is, when any part of the foetus presents at, or passes through the pelvis in a course or order different from that which
has

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has been described as natural (CCXCII. &c.).

CCCXLIX. As any external part of the foetus may, and as every part of it occasionally does present at the brim of the pelvis, delivery of wrong presentation is reducible to the four following general heads: 1. Foot. 2. Breech. 3. Cross. 4. Head.

CCCL. The two first heads evidently arise from the preternatural positions of the foetus in the womb before labour (CLXIII.); but the last seems rather to be the effect of mechanical motion erroneously directed, sometimes by known, at others by unknown circumstances; whilst the third seems to arise from the former sometimes, and at other times from the latter cause.

DELIVERY OF FOOT PRESENTATION.

CCCLI. Foot Presentation is when one or both of the lower extremities present.

CCCLII. In the presentation of the lower extremities, the foot or knee is the part that

that is most distinguishable : the first is readily known by the touch, from its smallness and inequalities ; as the toes, which are short, and nearly of an equal length ; the heel, and ancles ; the knee, from its small, obtuse, angular shape, and the patella.

CCCLIII. The general head of Foot Presentations is reducible to three distinct cases :

1. When the belly of the foetus lies to the sacrum or spine of the mother.

2. To either side.

3. To the pubes or navel. And each of these is readily distinguishable by the direction of the toes and heels.

CCCLIV. In foot presentations, the delivery is generally effected by the force of labour, in the following manner : the irritation of the mouth of the womb not being so great as in natural delivery, the pains are generally at first less frequent and strong, the mouth of the womb is of course much more slowly dilated, whilst the membranes are protruded through it, in a more conical form than usual. No part of the

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foetus

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foetus can at first perhaps be discovered by the touch ; and when there can, it is so distant and irregular, that it is difficult to determine what it really is. The labour however continuing, or perhaps increasing, the feet descend, and the membranes give way, when a larger quantity of water than usual is generally evacuated : the feet are felt now more distinctly, and the breech is perceived, if not before, in the brim of the pelvis. The labour in a short time increases ; and if the pelvis is not too small, the foetus too large, and the pains of a moderate force, the breech, being propelled into the pelvis, will dilate the passage for the body and head to follow, with an arm generally extended along each side of the head. When the breech has descended to the external orifice, the pains are commonly much increased in duration, frequency, and force, and if the woman has had a child before, and all other circumstances are favourable, the foetus will be entirely expelled by the force of labour alone.

CCCLV. When the delivery proceeds, as has been now described, the intentions of aid are the same as in natural labour (CCXCVI.); or should its progress be still more slow, either from its situation, or perhaps some of the causes of slow delivery occurring, in which case the symptoms are also generally the same (CCC.), together with the evacuation of the meconium: the aids of slow delivery should also be supplied (CCCIII.).

CCCLVI. But when the delivery has advanced so far that the umbilical chord is brought into the brim of the pelvis, where it is liable to pressure, especially from the head of the child, then indeed, and never until then, or until the woman's life is affected with danger, does farther aid become necessary.

CCCLVII. In this situation, the aid that is necessary is altogether manual, and distinctly applicable to the three cases (CCCLIII.).

CCCLVIII. In the first case, which is the simplest and most easy, a dry linen cloth being wrapped around the thighs of

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the child, a firm hold is to be taken of them, close to the external orifice ; the body of the child is then to be brought down through the passage, with a sufficient equal pulling force, in the due direction of the pelvis ; the grip may be occasionally changed, and always taken close to the pudenda of the woman, until the body is brought entirely down. Should the shoulders and head follow, as they sometimes do, without any material resistance, they are to be brought also down in the same manner, and cautiously extracted with a hand upon the perinæum ; but should they, as they more frequently do, stop in the pelvis, then the fœtus, being supported upon one hand and fore-arm, and drawn gently to that side, two fingers of the other hand are to be introduced along the child's arm, from the acromion to the joint of the cubit, where pressing the joint along the head, and close into the child's breast, they are to bring it around with a sweep out of the external orifice : the same being done with the opposite hand on the opposite side, the child is to be grasped between the

two

two hands, one before, the other behind, and the fingers resting upon the shoulders around the neck, when it is to be pulled with an equal strong force, in the direction that the head has to pass, when it will frequently come away with the proper turn around the pubis, one hand being at the instant applied to the perinæum.

CCCLIX. Should the head however still resist this force, the child being now in imminent danger, every effort is to be made: a finger is to be immediately introduced into the child's mouth, and, with the help of the other hand holding the neck and shoulders, the head is to be placed in the most favourable positions for passing the pelvis, viz. an ear is to be placed to the sacrum and pubes at the brim, and to each ischium at the bottom; the chin is to be pressed close to the neck, and the occiput is to be raised upwards. Should the head stick at the brim, the pulling force is to be applied towards the perinæum; if at the bottom, towards the arch of the pubes; should the under jaw yield, a finger is to be applied on each side the nose; and

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should the fingers slip on the shoulders, a dry linen cloth is to be wrapped round the body. The woman should also be changed from her side to her back, with her breech over the bed's edge, and her thighs supported by assistants, whilst the operator sometimes kneels, and sometimes stands, as occasion requires. In short, no possible exertion should be wanting; and if the pelvis is not very narrow, or considerably distorted, the head of the child remarkably large, or some extraordinary obstruction in the passage, there is no doubt that they will be crowned with success. Should any of these circumstances, however, render the extraction impossible, by these means it also render the case complex, under which head it is to be farther considered (CCCCXXXVI.).

CCCLX. In the second case (CCCLIII. 2.), if the foetus also stops, as in the first, the breech being brought through the external orifice, a firm hold is to be taken of it, and the body of the foetus is to be turned gently round, until its belly is brought opposite to the sacrum of the mother; by which

which it is reduced to the first case; and is to be treated in like manner; only that the arm of that side of the fœtus from which it is turned, being found between the sacrum and the head, is to be brought down first, as most easily accomplished; and the other, between the head and the pubes next. The head will also be found in its right situation, at the brim of the pelvis, viz. with the ears to the sacrum and pubes; therefore a further turn of the child's body is improper, until the head is descended to the bottom of the pelvis, when it is best turned, by the help of a finger in the mouth, as in the former case.

CCCLXI. In the third case (CCCLIII. 3.) the fœtus is still more apt to stop than in the two former, from the hitching of the chin upon the pubes; therefore, as soon as the breech has just passed the external orifice, the body should be turned, so as to reduce it to the second case, and then to the first, pushing it up if it has descended too far, and delivering in the same manner as in the first case (CCCLVIII. &c.).

DELIVERY OF BREECH PRESENTATION.

CCCLXII. Breech Presentation is when one or both nates present.

CCCLXIII. In breech presentations one or both nates, with the anus and organs of generation, are the parts that are distinguishable by the touch, the lower extremities being extended along the belly and breast, and the foetus being thus pushed down double.

CCCLXIV. The nates are known by their size and softness, with the division or sulcus between them, containing the anus and organs of generation; if any hard parts are felt, they are irregular, as the tuberosities of the ischia, and the point of the coccyx.

CCCLXV. The general head of breech presentations is divisible into three distinct cases;

1. With the feet and belly of the foetus to the spine or sacrum of the mother.

2. To

2. To either side.
3. To the pubes or navel.

CCCLXVI. In the first and third cases, both nates generally present, which sometimes resemble the head in bulkiness and rotundity; but, being soft and fleshy, want the solidity, hardness, equality, and seams of the head. In the second, but one of them, which considerably resembles the acromion in cross presentations (CCCLXXXV.), but is distinguishable from it by its greater softness and fleshiness, and by the other marks of the breech. The difference of each case from the others is also pretty easily discovered, by the direction of the nates and sulcus, and the position of the anus and organs of generation with respect to each other. In the male foetus, the scrotum generally hangs down below the breech, and is therefore first discovered like a soft bag, which is sometimes considerably tumified by pressure.

CCCLXVII. As in foot, so in breech presentations, if circumstances are favourable, viz. the pelvis and size of the child natural, the parts sound, and before dilated,

ed, and the labour good, the fœtus will be safely expelled by the force of natural labour alone; in which case, the indications become also the same as in natural labour (CCXCVI.).

CCCLXVIII. But should the delivery proceed more tardily, and thus come to resemble flow delivery, the symptoms being generally the same, and perhaps from the same causes (CCCL.), together with the frequent evacuation of the meconium; then the indications will of course become the same as have been laid down under that head (CCCIII.), which should be assiduously enforced, until the mother or fœtus is threatened with the approach of danger.

CCCLXIX. A knowledge of the danger of the mother is to be collected chiefly from the signs mentioned (CCCXII.); and that of the fœtus, from its situation in the pelvis: for, however the pressure of the breech may force away the meconium, this is no proof of danger, until it has descended to the external orifice, at which time the umbilical chord must be liable to pressure in the pelvis.

CCCLXX.

CCCLXX. When either mother or fœtus is judged in danger, manual aid may be readily administered in each case distinctly, at three different stages of the delivery.

1. When the breech is at the external orifice.
2. When it has stopt about the middle of the pelvis.
3. When it rests at the brim.

CCCLXXI. When the breech stops at the external orifice, the fore-finger of each hand being anointed, is to be thrust, one into each groin of the fœtus, and a firm hold taken of its breech, by pressing the thumbs along the sacrum, and the child being pulled by a gentle alternate motion, from side to side, and in all directions, will gradually descend through the pelvis, until its knees have arrived through the external orifice; when, by bending the body a little gently backwards, the feet may be entirely extracted, by which the case will be reduced to a foot presentation, and is to be delivered accordingly (CCCLIII. &c.); remembering, if any turn is necessary, first
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to push up the body, so that the head and shoulders may be above the brim of the pelvis.

CCCLXXII. When the breech stops about the middle of the pelvis, and the woman having received the necessary aids of slow delivery, is judged in danger, the fore-finger of one hand being anointed, is to be thrust into one groin, which is to be brought a little downwards; that finger being withdrawn, the opposite hip is to be brought down with the fore-finger of the other hand; and thus are they to be used alternately in the time of a pain, until both fingers can be introduced, as in the last case, like which it is to be farther treated.

CCCLXXIII. When the breech stops at the brim of the pelvis, which generally happens in the second case (CCCLXV. 2.), because one hip is apt to rest upon the pubes; the operator's hand and fore-arm being anointed, and the parts of the woman well lubricated and dilated, the bladder and rectum also being emptied, the hand is to be introduced in a conical form, as far as the breech, which should be raised a little
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upwards, and to one side, when the palm is to be flipt flat along the thighs of the foetus, up to the feet, which being accurately distinguished, and grasped in the hand, are to be turned down, giving the joints of the knees their natural flexure: as the feet are thus brought down, the breech may be a little farther pushed aside, until they are brought into the vagina, when, by continuing the hold of them, and pulling them entirely out of the external orifice, the breech will be again brought into the passage, and the case reduced to a foot one, like which it is to be farther treated (CCCLIII.).

CCCLXXIV. There is a sort of doubtful or neutral case between foot and breech presentation, which is the descent of one of the extremities only before the breech, the other being extended along the abdomen; but the treatment of it will be sufficiently understood from what has been said on the two foregoing heads (CCCLIII. and CCCLXV.).

DELIVERY OF CROSS PRESENTATIONS.

CCCLXXV. Cross Presentation is, when the foetus, lying more or less across the womb, some part of its trunk, neck, or superior extremities presents.

CCCLXXVI. The general head of cross presentation, being very extensive, is reducible to the following cases, each of which has several varieties: 1. Lumbar. 2. Dorsal. 3. Scapular. 4. Lateral. 5. Abdominal. 6. Pectoral. 7. Cervical. 8. Humeral. 9. Brachial.

CCCLXXVII. In cross presentations, the labour generally commences slow, and the mouth of the womb, which remains high in the pelvis, is tediously dilated, whilst the membranes are either very soon ruptured, or are propelled in a conical form, even sometimes like a portion of tumid gut, or the finger of a glove, arising from a want of irritation or due distension, as the presenting part cannot in general descend. The absence of the head, therefore, with the great distance and comparative small-

smallness of the presenting part, being the first material circumstances discoverable by the touch, the nature of each case, with the particular situations of the head and lower extremities, will become sufficiently obvious from the following description.

CCCLXXVIII. In the Lumbar presentation, the loins of the foetus are known by their flatness and solidity; the lumbar spine, without ribs, being perceived extending on one hand, with the nates and their fulcus on the other, determine to which side of the womb the head, and to which the lower extremities are situated.

CCCLXXIX. In the Dorsal presentation, the back is distinguishable by the sharp ridge of the spine, which generally runs from side to side. The lumbar spine without ribs, and the scapulæ, determine towards which side the shoulders and lower extremities are situated.

CCCLXXX. In the Scapular presentation, the broad flat shoulders being felt, the moveable scapulæ, with their spines, sufficiently denote the part; whilst the direction

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rection of the neck and the ribs point out to which side the head and the lower extremities are situated.

CCCLXXXI. In the Lateral presentation, the side of the foetus is felt thin and fleshy, with the ribs directing towards the head, and the spine of the ilium to the lower extremities.

CCCLXXXII. In the Abdominal presentation, the belly is readily distinguished by its softness and the umbilical chord arising from it; whilst the ends of the short ribs, the spines of the ilia, and the privities, sufficiently indicate the situation of the head and the lower extremities.

CCCLXXXIII. In the Pectoral presentation, the flat sternum, forming a kind of shallow groove between the transverse ribs, distinguish the part; whilst the termination of the ribs on one hand, with that of the shoulders on the other, point out to which side the head and lower extremities are situated.

CCCLXXXIV. In the Cervical presentation, the head being generally bent back upon the shoulders, the neck, and particularly

cularly the larynx, are thrust out into a kind of round tumour, which sometimes, though seldom, is discovered first at the mouth of the womb, and is known by its smallness, with the tubular and annular feel of the larynx; whilst the chin, and clavicles or shoulders point out the direction of the head and lower extremities.

CCCLXXXV. In the Humeral presentation, the acromion is felt small, round, and pretty solid, resembling either the knee, the elbow, or one of the nates, but distinguishable by the clavicle and neck leading to the head, and by the armpit and arm leading to the lower extremities; the ribs also point out the forepart or breast, whilst the scapula sometimes discovers the back of the foetus.

CCCLXXXVI. In the Brachial presentation, the hand or arm is felt first, and is easily distinguishable by its smallness, the fingers being long, small, and unequal, the hand thin and flat when open; the elbow is angular, hard, and pointed; the hand and arm readily descend through the mouth of the womb and vagina, and are

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sometimes even propelled through the external orifice, whilst the shoulder occupies the brim of the pelvis. One or both hands are also sometimes found, with either of the other cross presentations, but without materially varying them; and both arms sometimes, though seldom, come down together. From the hand alone, when extended, the situation of the foetus is sufficiently discoverable, the thumb pointing towards the head, the palm to the fore parts, and the little finger to the lower extremities.

CCCLXXXVII. In cross presentations, though the labour commences slow, yet after some time it increases, until the membranes give way; but as no bulky part descends, the waters are soon totally evacuated, and the os tincæ collapsing, feels less open than it did before. The labour pains are now wont to abate much in strength and frequency, nay, sometimes almost totally to disappear for several hours, or even days, whilst the womb is contracting closely though imperceptibly around the body of the foetus, until after a
various

various space they again return, stronger than at their commencement, by which means the presenting part is often thrust and impacted into the brim of the pelvis, whilst the foetus is most powerfully compressed on all sides, so as frequently to expel the meconium, and in a few days generally to destroy its life; whilst the fruitless agonies of the miserable mother, if suffered still to proceed, must in the end also produce the same effect upon her own.

CCCLXXXVIII. In some very rare instances indeed, where the foetus has been very small, and the pelvis extremely large, with the labour strong, and the constitution good, nature has prevailed even in this most unfavourable of presentations, and the foetus has been expelled as it were double.

CCCLXXXIX. But considering the size of the foetus and pelvis in a natural view, it is just to hold delivery in cross presentations absolutely impracticable by the force of labour alone; therefore obstetric aid becomes indispensibly necessary; and the

fooner it is given after the fit period of labour, it will not only be the more easily effected, but it will be the more safe to mother and foetus.

CCCXC. The fit period of labour in cross presentations at which to give aid, is, when the mouth of the womb is sufficiently relaxed and dilated to admit the passage of the hand through it, and the membranes are yet unbroken.

CCCXCI. But as the membranes are frequently ruptured before the mouth of the womb is sufficiently dilated, the next most favourable period for aid, is as soon after the rupture of the membranes as the os tincæ can be made to admit the safe passage of the hand through it.

CCCXCII. Lastly, the third and worst period is, when the membranes, have been a long time ruptured, the waters totally evacuated, and the womb closely contracted around the foetus, which is then thrust considerably into the pelvis, the parts of the woman being dry, hot, tender, and often in a state of inflammation and tumefaction, especially when unskilful endeavours

vours

vours have been used, either to extract or turn the fœtus, or to dilate the parts.

CCCXCIII. In cross presentations the indications of aid are, 1. To reduce the fœtus to that situation in which it can be most safely and speedily brought through the pelvis. And, 2. When so reduced, to extract it. The first is commonly, though not very properly, called Turning; the second, Delivery by the Feet: which constitute one of the most important improvements yet made in the art by the moderns, contrary to the precept and practice of the ancients, who generally in such cases enjoined the reduction of the fœtus to the presentation of the head.

CCCXCIV. Turning is generally executed with ease at the first period (CCCXC.), and with little difficulty at the second (CCCXCI.), because the womb, being distended with the liquor amnii, suffers the fœtus to be readily moved; or, though the liquor may be scanty or evacuated, yet if the womb is not contracted, it will still yield sufficient room for turning; but at the third period (CCCXCII.) it is sel-

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dom effected without difficulty and danger.

CCCXCV. In cross presentations the foetus is turned by the operator's hand introduced into the womb, pushing the part of the foetus that presents upwards and to one side, and bringing down its feet; to effect which purpose with the more certainty, ease, safety, and speed, it is in general necessary to observe the following rules.

CCCXCVI. General Rules for Turning and Delivering by the Feet:

1. The bladder and rectum should be empty.
2. The hand and fore-arm to be introduced should be anointed.
3. The best positions of the woman are, either on her side lying across the bed, with her breech a little raised and projecting, which generally will suit the introduction of either hand occasionally in all presentations: or when there is great difficulty in introducing the hand between the sacrum and foetus, the woman is best laid on her knees and elbows: or, when the chief
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difficulty lies in turning and bringing down the foetus, the back is in general the best position, with the breech over the bed's edge, and the thighs supported close to the belly.

4. The operator should in general kneel on one knee, supporting the elbow of the hand to be introduced upon the other.

5. That hand should always be introduced, the palm of which will be opposite to the child's lower extremities when situated between them and the womb, which is to be discerned before its introduction, by knowing the situation of the foetus, from the description of each case already laid down (CCCLXXVII. &c.).

6. The parts of the woman should be well lubricated externally and internally, and gently and gradually dilated by the hand, if not sufficiently dilated by labour.

7. The hand should be introduced in the smallest conical form, and the os tincæ should be dilated, when necessary, by introducing the points of the fingers into it, collected into a cone, and then separated with a moderate force, pressing the hand

against it occasionally, until it passes quite through.

8. In the introduction of the hand, the membranes should not be ruptured until it readily passes the os tincæ, when they are best broken by grasping them in the fingers, or by plunging the hand through them; whilst, by pushing the fore-arm into the passage, the waters are retained until the fœtus is turned: but when the membranes have been already ruptured, as much of the waters as possible is to be preserved by the same means, from the commencement of the delivery, and for the same ends.

9. The hand being introduced through the mouth of the womb, and the membranes ruptured, the presenting part is to be raised upwards from the brim of the pelvis, and to be pushed to whatever side the head or upper parts are situated; both of which are to be as much as possible effected in the intervals between the pains, lest the contrary exertions of the pains and pressure should endanger the uterus or fœtus.

10. The hand is then to be slipped past the part in its flattest shape, with the palm, whenever practicable, along the breast and belly of the foetus, that its feet being caught hold of, and brought down along the belly, the spine may be curved forwards in all the cases (CCCLXXVI.) except the two first, when the feet are generally to be brought backwards.

11. If the arm is found in the vagina, or through the external orifice, it is to be pushed gently backwards within the womb, and reduced to its natural situation along the foetus's side; but, if this is found impracticable, the child's shoulder being raised and pushed to one side, will make room for the arm to follow.

12. If the presenting part however cannot be raised and pushed to one side by a moderate force, which often happens when the womb is closely contracted, it being extremely dangerous to increase this force to a great degree, the hand should be passed on to the feet, which being brought down, will leave room for the head and shoulders to be turned upwards, which should

should then be effected by the end of the wrist, whilst the feet are still grasped and pulled down by the fingers, using these efforts alternately to turn the body of the foetus; remembering always to pull down during the pains, if there are any, and to push up in the intervals with an equal pressure, and though forcible, yet never violent, nor exerted in jerks, as either must inevitably endanger a rupture or laceration of the womb.

13. But as the presenting part will sometimes come down with the feet, and the feet will again go up with the presenting part, and thus prevent the foetus from turning, it becomes sometimes, though rarely, necessary to fix the feet below in the vagina or mouth of the womb, whilst the head and shoulders may be pushed upwards; and this is effected by applying a noose around the feet, either together or separately, and by means of it holding them firmly down with one hand, whilst the body of the foetus is pushed up with the other.

14. The noose is best made by doubling a strong ribband, garter, or piece of broad
tape

tape of about two yards long, and by passing the ends through the duplicature, and drawing them nearly through.

15. This noose being mounted around the points of the fingers of one hand formed into a cone, the other drawing and holding it moderately tight, is to be introduced as far as the feet, when, by opening the fingers a little afunder, and pushing the hand forwards, the feet are partly received into the noose, which is farther conveyed over them, by closing the points of the fingers upon them, raising the knuckles, and thus pushing it forwards, until it is certainly above the heels, and, if practicable, above the^s ancles, when it is to be drawn close and firm by the external hand.

16. As soon as the feet are brought through the external orifice, and the body of the child is situated with its breech in the brim of the pelvis, and its upper parts towards the fundus uteri, the case is reduced to a foot one (CCCLI.), like which it is to be extracted.

CCCXCVII. Notwithstanding the great number of cases, with their manifold varieties which occur under the general head of cross presentations, yet the foregoing rules being sufficiently applicable to them in every possible form, it is unnecessary to illustrate them more specially or minutely.

CCCXCVIII. But should it be found absolutely impracticable to turn the foetus in the womb, so as to deliver it by the feet, which very rarely happens, it may be attempted, particularly if the pelvis be also narrow, and the head very near it, to bring the head into the passage; and if this can be effected, the force of labour is to be awaited as long as the mother's safety will admit. Should the head, however, so reduced, still remain in the passage; or, as is most probable, should it be found impossible to make it present, or should it stick after the body is delivered, as in foot cases (CCCLIX.), in spite of all the endeavours there laid down, then in each of these three cases, the use of instruments becoming necessary, renders it complex, under

der which head it will be farther considered (CCCCXX.).

DELIVERY OF HEAD PRESENTATION.

CCCXCIX. The Head Presentation is, when the head of the foetus presents at the brim, or passes through the pelvis, before the body, in a direction different from what has been laid down as natural (CCXCII.).

CCCC. The wrong presentations of the head are very numerous, and, being often attended with difficulty and danger, are now first reduced under the denomination of preternatural, as being esteemed truly out of the regular course of nature, which certainly designed the head to pass through the pelvis in the manner before described (CCXCII.). They are reducible to the five following subdivisions, every distinct case of which it is of the utmost consequence to know accurately in practice:—
1. Vertical. 2. Frontal. 3. Oral. 4. Auricular. 5. Occipital. Each of the three first, again, is divisible into three cases,
and

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and all are sufficiently distinguishable by the following description :

CCCCI. The Vertical presentation of the head is wrong, when, though the vertex presents—

1. The child's face lies to the mother's sacrum at the brim of the pelvis, with an ear to each ilium, and the occiput to the pubes.

2. When the face is to either ischium at the bottom of the pelvis, with one ear to the coccyx, and the other under the symphysis of the pubes.

3. When the face is to the pubes, either at the bottom or at the brim of the pelvis.

CCCCII. The Frontal presentation is, when the forehead or fontanelle presents, either at the brim or bottom of the pelvis.

1. With the child's face to the sacrum.

2. To either side.

3. Or to the pubes.

CCCCIII. The Oral presentation is, when the child's face presents, either at the brim or bottom of the pelvis.

1. With

1. With the chin to the sacrum.
2. To either side.
3. Or to the pubes.

CCCCIV. The Auricular presentation is, when either of the sides of the child's head presents at the brim of the pelvis; and is not necessary to be distinguished into cases, because it is easily known by the feel of the ear to the touch, when, by raising up the neck and shoulder, and suffering the vertex or forehead to descend into the pelvis, it is reducible to the natural presentation, or to one of those of the first or second subdivision; like which it is to be farther treated, and therefore requires no farther distinct consideration.

CCCCV. The Occipital presentation, being still more rare than the last, like which it is to be exactly treated, is when the round projecting occipital bone presents.

CCCCVI. The wrong presentations of the head, except the oral (CCCCIII.), are scarcely, if at all distinguishable from its natural presentation, before the rupture of the membranes, and with more or less difficulty

ficulty afterwards, according to the particular case; it becomes therefore necessary to lay down those marks by which each individual case can, not only be distinguished from the natural, but from every wrong presentation.

CCCCVII. In wrong presentations, the head sticks not unfrequently at the brim of the pelvis, whence the labour does not in such cases commence so briskly as is usual; and when the membranes break, more of the waters are immediately evacuated, because the head does not so accurately fill the brim of the pelvis.

CCCCVIII. But in all the cases, if the labour be good, the pelvis pretty large, the head moderately small, and the parts naturally relaxed, particularly by former births, the foetus is wont to be delivered by the force of labour alone; and often without the discovery of the position, until perhaps the very last period of the delivery.

CCCCIX. But upon a more accurate examination by the touch, each particular case will be sufficiently distinguished by
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the particular positions of the leading marks upon the child's head considered, not only with respect to the mother's pelvis, but with respect to each other.

CCCCX. By the wide sagittal seam, running from sacrum to pubes, when the head is in the brim of the pelvis, it is distinguished that it does not present naturally; and by the lesser and greater fontanelles at the ends of this seam, it is known whether the occiput be to the sacrum or the pubes, and of course to which the face is.

CCCCXI. By the soft feel of the greater fontanelle in the centre of the crucial seams, and by the smooth feel of the face, the frontal presentation is known; whilst the smooth face and hairy scalp point out how the face and vertex lie. In this case, the forehead being propelled foremost, generally raises this part of the head to be more prominent than the vertex which is proportionally depressed, and causes a characteristic form of the cranium, apparent afterwards in the adult.

CCCCXII. The inequalities of the face readily discover it, even before the membranes are broken, and the fissure of the mouth compared with the prominent nose, as readily point out to which side the chin and forehead lie. Whilst its small size suffers it to be quickly pushed into the pelvis, but the round cranium following in so incommodious a form, is apt to delay the head considerably in its passage; whence the blood and humours being propelled into the child's face, and the circulation being impeded, it is frequently born with its features considerably enlarged, and its face as black as that of a negroe, which it a good deal resembles; especially if the accoucheur has not been extremely cautious and tender in touching, which is very necessary to be observed in this case, particularly lest the eyes should be injured.

CCCCXIII. Whenever the foregoing marks are found insufficient to determine the exact position of the head; and a knowlege of this becomes absolutely necessary for the purpose of giving aid: then this knowlege is to be still more certainly
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had by the introduction of the hand between the child's head and the pelvis, and by bringing it around until one of the ears is found, which is alone sufficient to discover the whole situation, as it is itself the mark of the side of the head, and by raising its back part, the occiput is naturally pointed out, and of course, the face must be opposite to that. The round prominence of the occiput, and the inequalities of the face, are also distinguishing marks.

CCCCXIV. In wrong presentations of the head, where circumstances are favourable, as in (CCCCVIII.), the indications of aid are the same as in natural delivery (CCXCVI.). But should the labour be protracted, either from the badness of the presentation, or from any of the causes of slow delivery (CCCI.) now combined with it, then do the indications of the treatment of slow delivery (CCCIII.) become here also necessary.

CCCCXV. In almost all, but particularly in the most unfavourable of these presentations, the head sometimes remains at

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the brim of the pelvis, notwithstanding the natural efforts of labour. When this is the case, and the os uteri is sufficiently dilated, the prime indication then is, to reduce the head to its natural presentation, or as near that as possible, which is to be effected by introducing the hand, properly anointed, into the uterus, and by raising the base of the head to bring its vertex first into the pelvis, with an ear to the sacrum, and the other to the pubes.

CCCCXVI. But should this be found impracticable, as it sometimes is, from the great slipperiness of the head, the force of the labour, or the contraction of the womb, &c. then the indication is, to turn and deliver by the feet, which is effected by the same rules as in preternatural delivery of cross presentation (CCCXCVI.); the earlier therefore in labour that this is attempted, the more speedily and safely will it be effected; whilst, if it be neglected until the womb is closely contracted upon the foetus, forming what has been called the Long-sheath case, the difficulty and the danger are considerably increased.

CCCCXVII.

CCCCXVII. If, upon the introduction of the hand, however, into the vagina or uterus, a very narrow pelvis is found to be the principal cause of the head's remaining at its brim, then turning is seldom advisable, because it brings the head into the pelvis in a most incommodious form. It is in general, therefore, in this case, better to use every endeavour to reduce the head as near the natural presentation as possible, and await the effects of labour as long as the mother's safety will admit, treating the case in all respects as in slow delivery (CCCHII.).

CCCCXVIII. Should the head by the above means be brought into the pelvis, and should it in that, or in any other case, be retarded there, either by its wrong position or the causes of slow delivery, until either mother or foetus fall into danger, the use of the forceps being then indicated, changes the nature of the case into that of complex delivery, under which head it will be farther considered (CCCCXX.).

CCCCXIX. And should the narrowness of the pelvis in any case of wrong presen-

tation of the head, still deny a passage by every means yet mentioned, the case then requiring the use of the scissars and crotchet, falls under the head of complex delivery.

COMPLEX DELIVERY.

CCCCXX. Delivery is Complex, when a combination of preternatural circumstances, or embarrassing or dangerous occurrences, render extraordinary aid necessary.

CCCCXXI. This combination of preternatural circumstances is reducible to the necessity for the use of instruments with wrong presentation.

CCCCXXII. But though every case of wrong presentation of the fœtus, happening in a narrow pelvis, may require the use of instruments, yet as all wrong presentations may be reduced to three heads, the above combination is thus best reduced to the same, viz.

1. When the head presents wrong, and is to be delivered before the body, but
sticks

sticks in the pelvis until mother or foetus is in danger.

2. When the body is delivered, but the head sticks in the pelvis.

3. When the body lying across, or rather being pushed double into the pelvis, cannot possibly be turned so as to bring the head or feet into the passage.

CCCCXXIII. When the Head presents wrong, but remains in the pelvis until the mother or foetus is affected with danger, which is to be known by the rules already laid down (CCCXII. &c.); except that in general, the worse the presentation is, the greater is the pressure upon the foetal cranium, and of course the sooner must the foetus be endangered. The forceps is to be applied nearly according to the rules also before laid down (CCCXV.), with this material difference, that the blades, though still to be carefully applied over the ears, are to be locked opposite to the part that presents, and the head is often to be brought down, with the large bulky cranium turned into the hollow of the sacrum. But as the smallest mistake, parti-

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cularly in the extraction of most of these cases, may prove fatal to the foetus, extremely troublesome to the operator, and dangerous to the mother, it seems necessary to specify more particularly the directions for extraction in each case.

CCCCXXIV. Fourth Forceps Case.—

The vertex presenting, the head at the brim, with its thickest part not yet fairly entered into the pelvis, and the forehead to the sacrum, an ear to each ilium, and the occiput to the symphysis of the pubes.

CCCCXXV. The woman being laid upon her back, and the forceps applied according to the general rules (CCCXV.), the head is to be raised a little upwards, so as to disengage it from the pressure of the pelvis, and the face is to be turned cautiously and gently to which ever ilium it most inclines to, by bringing around one blade of the forceps directly opposite to the symphysis of the pubes, and the other to the sacrum and coccyx: the delivery is to be then finished, as in the third
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forceps case (CCCXXII.), to which it is thus reduced.

CCCCXXVI. Fifth Forceps Case.—The vertex presenting very low in the bottom of the pelvis, with the face to either ischium.

CCCCXXVII. This is so similar to the second case (CCCXIX.), as to require no farther consideration than just to observe, that it is to be raised a little upwards before it is to be turned, with the face to the coccyx, in order to reduce it to the first and easiest case (CCCXVII.).

CCCCXXVIII. Sixth Forceps Case.—The vertex presenting with the child's face to the symphysis of the pubes, and the thickest part of the head past the brim of the pelvis.

CCCCXXIX. The woman being laid on her back, and the forceps applied over the ears according to rule, the head is to be extracted as it presents, without any turn, because its occiput suits the hollow of the sacrum nearly as well as its face, whilst this passes the arch of the pubes, similar to the occiput; but as soon as the
chin

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chin is brought without the pubes, the head should be turned round it as in other cases; great care being taken here to guard the perinæum with one hand, as it is in extraordinary danger from the projection of the vertex.

CCCCXXX. But should the thickest part of the head in this presentation still remain above the brim of the pelvis, the case is materially varied; for the forceps being applied as before, the head is to be raised upwards, and turned with the face to the ilium, by which it will be reduced to the third forceps case (CCCXXI.), like which it is to be farther treated.

CCCCXXXI. Seventh, Eighth, and Ninth Forceps cases.—The fontanelle presenting with the face to the sacrum—To either side—or to the pubes.

CCCCXXXII. The particular rules in these three cases are:

1. To extract the head as it presents, either with the face to the sacrum or pubes at the bottom of the pelvis.

2. In bringing the head through the brim, to turn the face to the ilium. And,

3. As

3. As soon as it has passed this, to turn the round vertex or the face into the hollow of the sacrum, and to bring the opposite part out under the arch of the pubes.

CCCCXXXIII. Tenth, Eleventh, and Twelfth Forceps Cases.—The face presenting with the chin to the sacrum—to either side—or to the pubes.

CCCCXXXIV. The three last rules are also applicable to these three cases, only substituting the chin for the face.

CCCCXXXV. But should the pelvis be so very narrow, that even by these means the head cannot be possibly extracted, and the mother's life is affected with danger; or if the foetus be certainly known to be dead by the signs already mentioned (CCCXXVII.), then recourse must be had to the scissars and crotchet; which are to be used precisely according to the rules before laid down for the use of these instruments (CCCXXIX.), with this only difference, that the cranium is to be penetrated wheresoever it can be best come at with the scissars.

CCCCXXXVI.

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CCCCXXXVI. Whenever the body is delivered before the head, it has been already observed that the head sometimes may stick in the passage in spite of all possible endeavours to extract it (CCCLIX.); when this is the case, the forceps is to be applied in the following manner.

CCCCXXXVII. Thirteenth Forceps Case.—The body of the child delivered, but its head sticking at the brim of the pelvis.

CCCCXXXVIII. The woman lying on her back, the child's face is to be turned to the sacrum, and its chin pressed close to the neck, or its occiput raised by pushing up the neck; and whilst its body is supported on the left hand, raising it considerably upwards, the right is to be introduced along the child's head, over its right ear; when the body being rested on that fore-arm, a blade of the forceps is to be introduced with the left hand over the child's ear, the right hand being then withdrawn to hold the handle of this blade, and still support the body of the foetus; the left hand is next to be introduced

duced along the left ear, when the body of the child being shifted upon the left arm, the right hand is to introduce the second blade of the forceps, and the left hand being withdrawn, the blades are to be locked over the apex of the chin, keeping the handles close to the child's breast, whence an exceeding good hold is taken of the head: the handles being now grasped with one hand, whilst the other clasps the neck and shoulders, the head is to be turned with the face to the side, and an ear to the sacrum and pubes; when, by a sufficient force duely exerted in the direction of the pelvis, the head will be brought through its brim; the face is then to be gradually turned into the hollow of the sacrum, and the head extracted with a turn around the arch of the pubes, whilst one hand supports the perinæum, as in all other forceps cases.

CCCCXXXIX. But should the pelvis be found too narrow to admit this useful operation, then recourse must necessarily be had to the scissars and crotchet; when, the face being brought to one side as close, and
pushed

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pushed up as high as possible, the occiput will be brought into the opposite side of the brim of the pelvis, so as to be operated upon with sufficient ease and safety.

CCCCXL. One hand being then introduced upon the occiput, and the scissars split along it by the other, their points are to be pressed through the cranium, and a crucial incision made, nearly as in the first crotchet case (CCCXXXI.), through which the brain being sufficiently evacuated, the diminished head can now scarcely fail of being extracted by a proper force exerted upon the neck with a finger in the mouth, and giving the head its still necessary turns; but should this be insufficient, the hand being introduced either to the sacrum or to one side, the crotchet is to be split in along it, and fixt into the cranium either externally or internally as most convenient, when a proper force being exerted upon the crotchet and neck together, the head must at length be infallibly extracted.

CCCCXLI. Lastly, when the foetus lying across, or rather being pushed double
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into the pelvis, cannot possibly be turned so as to bring either head or heels into the passage, it becomes sometimes, though very rarely, necessary to use the scissars and crotchet after the foetus has been certainly destroyed, or the woman's life is in danger, in order to lessen it and bring it away, by separating its body, and bringing its parts piecemeal, until the head, still left adhering to the spine, with at least part of the shoulders is brought into the passage, when it is to be farther reduced, if necessary, and extracted, as in the last case (CCCCXXXIX.).

EMBARRASSING OR DANGEROUS OCCURRENCES.

CCCCXLII. The Embarrassing or Dangerous Occurrences which render extraordinary aid necessary, may either arise in the time of labour, or exist before its commencement; many of them may also happen, as well in delivery otherwise natural, as in preternatural; and they are as follow :

CCCCXLII.

CCCCXLIII. Abortion and Miscarriage having been already explained (CCLXXII. &c.), the last curative indication was to give the necessary aid in delivery. In miscarriage, that aid is precisely the same as in other deliveries, according to the particular head under which it may fall, only observing, that the cervix uteri, not having been fully enlarged, the os uteri is of course more rigid, and therefore more slowly and difficultly dilated; whence, though the child's head may present right, and the forced labour (CCLXXXVIII.) may be as strong as natural, yet the delivery is in general but slowly effected, and is therefore to be treated as such (CCCIII.).

CCCCXLIV. In abortions of the early months little can be done, but to wait with patience for the efforts of nature, which, before the fœtus is quite formed, generally throws off the whole ovum together; but after that, the membranes more frequently giving way, the fœtus is often expelled some time, even days before the secundines: for the collum uteri
being

being here so very rigid, and so little, if in the least dilated, scarcely any manual aid can be afforded, and none until either the foetus or placenta is felt sticking in the passage; when they may be brought away between a couple of fingers, without the introduction of the hand into the vagina: but even this is unnecessary, if they do not stop in the passage, and some disagreeable circumstance or symptom supervene the delay, such as flooding, excessive pain, &c. The nearer the abortion approaches to miscarriage, and the nearer that approaches to the full period of pregnancy, the more regular they become, and the more easily treated, according to the general rules of delivery.

CCCCXLV. An Uterine Hæmorrhage or Flooding has also been considered as existing before labour (CCLXV.), and the last indication was to promote the contraction of the womb, by delivery. This is in general effected with more or less difficulty, according to the period of pregnancy, the force of the labour, if any, and the state of the parts. But the ge-

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neral strength of the fibre being greatly lessened, and the passages particularly relaxed by excessive flooding, renders them more dilatable than in any other circumstances. Whenever the woman therefore is reduced to a state of actual danger, the operator's hand is to be introduced into the vagina; a finger is to be pressed into the os tinæ, with which it is to be gently stretched, so as to admit a second, and after that a third, turning them repeatedly round and round, and gradually and gently extending and separating them, yet with a sufficient equal force to stretch and dilate the mouth of the womb; in which the greater dispatch is to be used, the greater the woman's danger is. The points of all the fingers being at length admitted in a conical form, the same efforts are to be continued, occasionally pushing the hand forwards through the mouth of the womb. If the danger is great, it is best to rupture the membranes, and suffer the waters to be evacuated in the beginning of the operation, as this occasions a considerable contraction of the womb,

womb, and consequently in general abates the flooding; but if the danger is not so imminent, it is best to preserve the waters until the hand passes the mouth of the womb, when the membranes being torn by grasping them in the fingers, or by plunging the hand through them, the presenting part of the foetus is to be pushed up and to one side; the feet are to be sought for, and brought down, when the waters, if not before evacuated, may be suffered to flow off, and the delivery is to be terminated cautiously, according to the rules of foot cases (CCCLI.), and more or less speedily according to the danger; whilst the necessary pressure (CCCCLXVIII.) is to be applied to the woman's abdomen, and her spirits are to be supported with the frequent use of the most nourishing forbile food, with small quantities of astringent wine; nor is she to be moved, either before, in the time of, or shortly after the delivery, in the smallest degree that can possibly be avoided.

CCCCXLVI. A Flooding may also arise at any period of any kind of deli-

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very, when it should generally be concealed from the patient's knowledge, as only tending to interrupt her labour from the effects of fear. Whilst it remains only slight or moderate, it requires little variation in the treatment of any particular case from that already laid down, except in keeping the woman particularly cool and quiet, and perhaps in the administration of an opiate upon the basis of some moderate astringent. If it arises to any considerable degree before the membranes are ruptured, and the presentation is natural, the waters may be safely evacuated, and the labour suffered to proceed; but should the presentation be in any respect wrong, it will be best to turn and deliver by the feet as soon as practicable. When the head has however advanced into the pelvis, should it from any cause be delayed there, or in any other case where the head stops or passes very slowly through the pelvis, should the flooding increase, or arise so as to become dangerous; then recourse must be had to the forceps, according to the rules laid down, in whatever

ever case it may be. But should it be farther complicated, with an extreme narrow pelvis, then also, the forceps failing, the farther advance must be made to the use of the scissars and crotchet, without waiting until the woman is too far exhausted, lest she also with her miserable foetus should be destroyed.

CCCCXLVII. The attachment of the placenta over the os tinæ, though it is always in delivery, and generally for some time preceding, attended with flooding, yet, as it is one of the most dangerous occurrences in midwifery, is to be distinctly considered. When the placenta happens, as it not infrequently does, to adhere to the collum uteri, if the edge comes only near, or close to the os tinæ, it generally occasions a flooding in the course of the labour; but when it is applied more or less over the mouth of the womb, then a flooding must commence as soon as this orifice opens in the smallest degree; and as the womb is generally most and soonest distended where the placenta adheres, this again brings about the earlier dilatation

of the orifice ; of course therefore, a flooding in this case almost constantly precedes labour even for several weeks. As it comes on without any evident cause, it is also wont to be profuse ; and though not difficult to be stopt for a time, it is very certain to return ; but sometimes it rather keeps up a constant dripping, without profusion or interruption. As soon as the danger arising from the excess of the evacuation, or labour supervening, renders it necessary to feel the state of the parts, the case is to be more clearly distinguished by the touch ; for the mouth of the womb, being always more or less open, instead of the thin, smooth, membranous bag, yielding fluctuation, with the feel of some part of the fœtus, soft clots of grumous blood, as in other floodings, first present to the touch ; passing which, the soft, spongy, lobulated surface of the placenta is felt ; and the greatest caution should be constantly used in touching, not to press strongly against it, lest it should be farther separated from the womb, and consequently increase the discharge.

CCCCXLVIII. The case being thus discovered, requires the utmost attention; first, not to attempt the delivery too soon, before the os tincæ is dilatable with sufficient ease, for, in that case, there is no doubt that every fruitless effort to stretch the mouth of the womb would endanger a farther separation. But as the flooding is the urgent symptom, let it be treated with all the possible caution and care, recommended in such cases (CCLXV. and CCCCXLV.), until the safety of the woman absolutely requires farther aid. Let the hand then be introduced, as in other cases, into the vagina; let the point of the fore-finger be passed gently through the mouth of the womb, and with the most easy, insinuating, rotatory motion; let the placenta be perforated by it, particularly in one of the fulci between its lobes, if it can be found. Let the finger then be turned round, so as to dilate this hole for a second finger, which is next to be introduced as well through it as the os tincæ, and let both these orifices be thus dilated by finger after finger, and made

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exactly of an equal size, until they admit the hand to pass entirely through them; when the foetus is to be delivered by the feet, as in other flooding cases, only extracting it through this hole in the placenta, or perhaps only through a rent in its edge or side, if a portion of it only extends across the orifice.

CCCCXLIX. By this easy perforation and laceration of the placenta made by the author, with constant success in many very dangerous cases, have all the evil, and most commonly fatal consequences, of separating the placenta, in order to pass the hand between it and the womb at some one side or other, as directed by other writers, been entirely avoided: for the flooding has never been perceptibly increased whilst the os tinæ has been sufficiently dilated; nor has the loss of blood from the torn vessels of the placenta in any instance injured the foetus, as perhaps might be expected.

CCCCL. Convulsions have been explained as existing before labour (CCLVII.), and in them too, the dernier resource sometimes

times lies in delivery ; which is in general to be effected in the same manner as in cases of flooding, with this difference, that the muscular contractions of the former, acting as labour pains, generally assist much in dilating the mouth of the womb ; nay, in many instances they have been found sufficient, not only to bring the head into the passage, but even to effect the total delivery. Should the head however stick in the passage until the frequency or violence of the paroxysms threaten immediate danger, then recourse must be had to the forceps, or in the truly scissars and crotchet cases, to these instruments.

CCCCLI. Convulsions also sometimes arise in the time of labour, particularly to women of the sanguineous temperament and an irritable system, when they are overheated by any means. If the disease is moderate, the labour good, and the presentation natural, the indication is, to obviate the disease as much as possible, by the means laid down (CCLVIII.), and attentively to await the effects of the labour ;
but

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but if the disease increases rapidly, whilst the delivery advances slowly, the same aids are to be exhibited as in the last case, viz. if the presentation is in the least wrong, or the head above the brim of the pelvis, the foetus is to be turned and delivered by the feet; but if the head sticks in the pelvis, then it is to be extracted by the forceps, or reduced by the scissars, as occasion may require.

CCCCCLII. A Prolapsus of the Umbilical Chord sometimes happens before the head of the foetus in its natural presentation; or it may also happen in all the wrong presentations; and whenever it does, is attended with the most imminent danger to the foetus, though of no other bad consequence to the mother, except if unnecessarily and injudiciously pulled, that it may occasion a separation of the placenta from the womb, and thus produce flooding.

CCCCCLIII. In the first variety of this case, whenever the chord is found it should be immediately replaced above the head of the foetus, free from pressure in
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the pelvis ; and this is effected by introducing the hand into the vagina, and with the fingers pushing the duplicature of the chord past the head, whilst this is a little raised and held up by the thumb or some of the fingers, until the chord is fairly placed above the brim of the pelvis, and kept there until a pain comes on, at which instant, by gently stealing away the hand, the head comes down, whilst the chord remains.

CCCCLIV. If the chord is felt through the membranes before they are ruptured, and the mouth of the womb is sufficiently dilated to pass the hand, its reduction will be easier effected by immediately introducing the hand and breaking the membranes, taking care however to keep up the chord until the waters have flowed off, and the head has descended right into the brim of the pelvis. But if the mouth of the womb is not sufficiently dilated, that event is to be attentively awaited, and when it happens, the necessary aid given.

CCCCLV.

CCCCLV. Though the prolapsed chord may be reduced with all possible care, yet it is apt to come down again; in which case, the reduction is to be immediately, as often as it can be done with safety, repeated; but if the pulsation of the arteries in the chord is found weak, and frequently interrupted during the pain; or if it totally ceases, and the chord becomes tumid, or sometimes very flaccid, the foetus is to be considered in the most perilous situation, and immediate aid is to be exhibited lest it should perish.

CCCCLVI. The nature of the aid will be indicated from the progress of the head, if this is still found at the brim of the pelvis, without being materially engaged between the bones, and the womb is not very closely contracted upon the body of the foetus; then the safest and speediest aid will lie in turning and delivering by the feet: but if the head is so far advanced that it can be come at by the forceps, this instrument may be often employed with success, according to the peculiar case and the rules laid down; only taking

taking care not to suffer any part of the chord to be fixed between the child's head and the blade of the forceps.

CCCCLVII. The prolapsus of the chord, with any known wrong presentation of the head, affords a fully sufficient reason, whenever both prolapsus and presentation cannot be easily reduced, which will seldom if ever be effected, for immediately turning and delivering by the feet, except under this singular complication, when all these circumstances are combined, with an extreme narrow pelvis, in which case, the scissars and crotchet becoming absolutely necessary, are better applied with the head presenting, than when the body has been delivered.

CCCCLVIII. The prolapsus of the chord, with all other wrong presentations, in general render a speedy delivery necessary, with great caution to avoid as much as possible all pressure upon the chord.

CCCCLIX. Circumvolutions of the umbilical chord around the neck, trunk, or extremities of the foetus, sometimes
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embarrass the operator, and endanger the foetus; but as they never impede the delivery, all that is necessary is, 1. To avoid as much as possible all unnecessary pressure or tension of the chord; and, 2. To disentangle it from the part as quickly as possible after it is delivered, without waiting to cut or tie it, except, as it very rarely happens, that it may have been by some means partly or entirely broken or torn; in which case, as soon as this is perceived, a ligature is to be made on the torn part next the foetus.

CCCCLX. A prolapsus, as it may be called, of one or both hands of the foetus, sometimes happens along the head in its natural or wrong presentations. In these complicated cases, though it is possible that the efforts of labour, under the favourable circumstances of a large pelvis and a small foetus, may effect the delivery; yet, as the bulk of a hand in the pelvis must form a very great impediment to the passage of the head in its most favourable direction, it becomes a necessary indication, to reduce the hand above
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the brim of the pelvis, which is generally effected with considerable ease, by the introduction of the operator's hand into the vagina, and by pushing the child's hand above its head, which may be a little raised, in order the easier to suffer the hand to pass; then the head may be suffered to come into the passage with a pain; and if its presentation has been wrong, endeavours may be now used to reduce it to its natural situation; but if neither this can be executed, nor the hand reduced, which last sometimes, though seldom happens, then it becomes necessary to turn and deliver by the feet, except in case of an extreme narrow pelvis. But should the head by any means have descended into the pelvis, too far for any of these operations to prove successful; or should the pelvis, as just now observed, be very narrow, the case is to be treated as a slow delivery (CCCIII.) until the danger of the mother or foetus renders the forceps, or, in case of a very narrow pelvis, the crotchet necessary.

CCCCLXI. When one or both hands slip into the passage along with any of the other wrong presentations, it only increases the necessity of turning and delivering by the feet; in which case the hand or hands should always be carefully raised above the brim of the pelvis, before the breech is brought into it.

CCCCLXII. A Plurality of Fœtuses may sometimes embarrass, but is seldom attended with any peculiar circumstances of danger. The remaining fœtus is scarcely ever discovered until after the delivery of the preceding one, when the abdominal tumor being felt as directed (CCXCVI. 7.), is found still considerably great, hard, and circumscribed: a finger being next introduced into the os tincæ, will discover the membranous bag of waters, if yet unruptured, which it generally is, with some part of the remaining fœtus presenting.

CCCCLXIII. The case being discovered, or indeed even suspected, renders it prudent, if not absolutely necessary, to tie the umbilical chord of the new-born infant

fant at two places, and to cut it between them, lest by a communication of umbilical vessels, the unborn foetus might bleed at this opening. The case should also be in general concealed from, or very cautiously revealed to the mother, lest the surprize, or ill-grounded fears of danger, might do injury. But, the passage having been recently dilated by the birth of the first, leaves little impediment to that of the following; and the foetuses being generally small, are born with ease: therefore it is, that after a short respite of some minutes, or perhaps seldom of some hours, and very rarely of a few days, natural labour returning, expels the succeeding foetus, even more speedily and easily than the former; and the woman is thus often delivered of twins, trines, &c. with as little or perhaps less difficulty than of a single foetus.

CCCCLXIV. The womb not so commodiously admitting both foetuses to lie with their heads to its orifice, the first therefore in twins generally presents right, the second for the most part com-

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ing footling : yet sometimes this order is reversed, and at other times two foetuses will present in the same manner ; but it very rarely happens that either lies across. Whatever the presentations may be, however, whilst separate, they are to be treated as so many distinct cases, according to the rules already laid down, the only difficulty arising from this question, Whether it is not better to introduce the hand and extract the succeeding foetus by the feet, than to await the result of labour, that is precarious in its return, and uncertain in its event ? The answer is obvious, nature requires only official, not officious aid ; until a necessity for aid therefore is indicated by her, in the wrong position of the foetus to be born, or in some symptom of danger arising to it or the mother, all manual aid seems to be improper.

CCCCLXV. In case of wrong position, flooding, &c. in the second delivery, is to be treated just as in the first ; and when the foetus is extracted, there is the same necessity as before for examining the abdomen for another ; which, if found, is to be
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treated in the same manner, and so on, until the last is delivered, when the placentas are also to be delivered, as before laid down (CCXCIV. and CCXCVI. 9, 10.). But as these are sometimes separate, and at others united, it becomes proper to aid their expulsion, by gently pulling now one, and then the other chord, and again both chords united, until either one or both placenta come down within the reach of the finger, with which they may be gently assisted in their passage through the external orifice.

CCCCLXVI. In a plurality of foetuses it sometimes happens, that by the force of labour, or the introduction of the hand, the membranes of the second foetus are ruptured before the first is born; by which means, parts of both foetuses, or possibly of more, if there are more, may come into the passage, or at least come in the way of the hand when introduced, and may thus embarrass the operator.

CCCCLXVII. In this very rare case, what is principally necessary to be attended to, is turning to deliver by the feet: the

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rules are, 1. To prefer delivering that fœtus first which presents nearest in the brim of the pelvis, and therefore to push the other as much as can be done with safety out of the way. 2. In searching for the feet, the hand is to be directed along the fœtus to its pelvis, when the fingers can be easily conducted along the extremities belonging to that fœtus; or, if one foot is first found, let the fingers trace the extremity to the trunk, and thence trace the other extremity back with it to the second foot; by which different means both feet of the same fœtus may be certainly found, though blended with those of another fœtus; and when they are brought down, care is to be taken that no part of the other fœtus may be suffered to slip into the pelvis, along with that which is about to be delivered: wherefore the noose (CCCXCVI. 14.) is sometimes found necessary here also.

CCCCLXVIII. A too sudden evacuation of the contents of the uterus and abdomen, is an occurrence which sometimes happens in deliveries otherwise natural,
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from the effects of strong labour upon a small foetus in a wide pelvis, with lax parts. It may also arise from an injudicious speed in delivering by the feet, when the foetus is extracted as it were instantaneously, without the least respite or delay for the refreshment or support of the woman. The effects of either may be long, dangerous, and sometimes fatal, as faintings or lipothymiaë; a flaccid and collapsed state of the uterus, unable to contract; and if the placenta be either partially or totally separated, a profuse and dangerous hemorrhage. These are prevented by breaking the membranes, when the labour and progress of the birth are found too rapid in natural delivery; by allowing a proper space of time for the uterus to contract as it is emptied, in preternatural deliveries; and in both, by immediately compressing the abdomen of the woman by the hands of an assistant, or a proper bandage tied round the body, and by supporting her with moderate cordials.

CCCCLXIX. A prolapsus of the rectum, or of the vagina sometimes incommodes the patient in delivery, especially during the labour-pains: these may be sufficiently relieved by being reduced, and the parts supported in the natural situation, by a soft, thick compress held firm against them by the hand of the operator.

CCCCLXX. The descent and expulsion of the os uteri on the head of the foetus, sometimes, though very rarely, occurs. As it seems to proceed from a rigid state of this orifice, with strong labour and a wide pelvis, it is to be obviated by lubrication, moderate counter-pressure, and gentle dilatation.

CCCCLXXI. A laceration may happen in the perinæum, sphincter ani, and perhaps extending some way up the vagina and rectum, and also in the os tincæ. It generally either arises from a state of great rigidity, with strong labour, or from the abuse of instruments, or too violent endeavours to dilate with the hands. These causes, therefore suggest the true mode of prevention, viz. by lubrication and counter-

ter-pressure in the first instance, and great caution and care in the others, not to exert violence or too much force.

CCCCLXXII. A rupture of the womb or of the vagina also sometimes occurs, either from some debilitated state of a particular part of these organs, from excessive force of the labour, or from violence used by the operator, particularly in turning the foetus.

CCCCLXXIII. When this most dangerous and generally fatal occurrence takes place, it is discovered by the excessive pain it gives, by a slight flooding, by the sudden loss of force or exertion in the labour, though attended with acuter pain, particularly felt near the navel, and by the retraction of the foetus instead of its descent, at first not very considerable, but soon increasing, even to its total removal from the touch, which in some cases happens more quickly, with a considerable change and inequality of the abdominal tumour; the pulse, respiration, and spirits, are generally soon sunk, with evident agitation and fluttering; a constant vomit-

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ing, and a severe hiccup attend; and the woman is most commonly seized with alarming faintings and convulsions as the general preludes to her dissolution.

CCCCLXXIV. It has however sometimes though rarely happened, that the foetus and secundines being thus propelled into the cavity of the abdomen, and the womb contracting, which it generally soon does, even in fatal cases, to a very moderate size, the woman has survived and carried about this load of extra-uterine foetus.

CCCCLXXV. As soon as this deplorable occurrence is discovered, it becomes necessary to deliver, 1. By the forceps, if the head is within its reach. Or, 2. by the feet, if the foetus or any part of it still remains within the uterus, or even can be come at through the breach, which most probably may always be effected through the rupture of the vagina, but scarcely ever through that of the uterus; the thinness and lax state of the one, admitting what the great thickness and rigidity of the other

other absolutely prohibits after its contraction.

CCCCLXXVI. When this last is the case, the only resource lies in an incision similar to that of the Cæfarean operation, the speedy performance of which may rescue the foetus, though the possibility of the woman's recovery without it, and perhaps the momentary expectation of her decease, equally conspire to render the propriety of the operation in so critical a state, at least problematic, if they do not totally decide against it.

CCCCLXXVII. An Extra-uterine foetus, either in its original state (CXLVIII. 2. and CLXXX.), or from the foregoing occurrence, may also be considered here as a distinct case, arising under the head of complex delivery.

CCCCLXXVIII. When the extra-uterine foetus in the first case, has arrived to the ultimate period of uterine gestation alive, it has been observed (CCXXVII.), that nature has sometimes used efforts similar to labour for its expulsion; but all passage being denied, and the foetus no longer able
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to survive, it has often been carried, under a variety of circumstances, for a number of years; whilst nature has still seemed to keep up her endeavours to expel it, as an extraneous body injurious to her operations; in which she has often succeeded, chiefly by forming an abscess, through which the dissolved and separated portions of the foetus have wrought their passage, either into the cavity of the intestines, whence they have been carried off by the anus, or through the parietes of the abdomen.

CCCCLXXIX. In like manner, the foetus of the second case, when it has remained for some time in the abdomen, is treated by nature; and this seems to point out, in both, the aids which nature requires:

1. In the case of a mature foetus, actually alive in the abdomen at the last period of uterine gestation, and the mother in a state of body fit to bear an operation, there seems to be little doubt that the Cæsarean section is the only means of relief; but should the strong contractions

tions of the abdominal muscles force the tumour through the pelvis into the perinæum or anus, then as little doubt seems to remain, that an incision should be made through these parts, instead of the parietes of the abdomen. But this time of aid being past, or never occurring, the next appears to be, when an abscess has been formed through the parietes of the abdomen, in which case, a sufficient dilatation of this abscess, with an extraction of any remaining parts of the foetus through it, according to the known rules of surgery, seems evidently necessary.

CCCCLXXX. An inversion of the womb is a most dangerous occurrence, which sometimes arises from too sudden a delivery, or the violent extraction of the placenta, either by the chord or the hand, immediately after the delivery of the foetus. As it must happen, whilst the womb is in its enlarged, but flaccid and collapsed state, and its orifice still dilated, so its reduction is to be effected only whilst these circumstances in some measure remain, as it will be found impracticable after they have

have given way to its contraction, thickening, and rigidity: therefore the utmost expedition is to be used to reduce the womb into its natural situation, by pressing the fundus, well anointed, back through the os uteri. Where this has been at first neglected, and afterwards found impracticable, there are some rare instances of the woman surviving under the inversion, and others, of the inverted part mortifying, and falling off, which has in general proved fatal, though even in so deplorable a case, there are not wanting instances of recovery, the woman thus surviving the entire loss of this organ. In these dangerous circumstances, the chief indications seem to be, to abate inflammation, and to obviate mortification.

CCCCLXXXI. *Herniæ* of various kinds sometimes embarrass, by interrupting the labour, and endanger by strangulation.—The indication is, to reduce the projecting part, whether intestine, omentum, or uterus, &c. to its natural situation, and there to retain it by the pressure of a thick, soft compress upon the
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opening by the hands of a careful assistant.

CCCCLXXXII. A suppression of urine frequently occurs under every head of delivery, chiefly from the pressure of the presenting part of the foetus upon the urethra or neck of the bladder; and when neglected, lays the foundation for lasting and obstinate complaints in these parts, besides the present danger of an actual rupture of the bladder when over-distended with urine, and under the influence of very strong labour. These considerations therefore suggest the caution in all deliveries, of a frequent enquiry into the state of the bladder, and of never suffering it to become too full; and in case of suppression, to empty it every eight or twelve hours at farthest, either by raising the presenting part from pressing upon the passage, which is frequently sufficient; or by the use of the catheter; the introduction of which also frequently requires the pressure of the foetus upon the urethra to be a little removed.

CCCCLXXXIII. A stone in the bladder has been laid down as one of the causes

causes of slow delivery (CCCL. 5.) ; but it may also happen, that this being so impacted into the urethra that it cannot possibly be pushed back, may absolutely prohibit the passage of the foetus, or particularly of its head, whilst it creates the most excruciating torture to the mother ; and if not equal pain, perhaps superior danger to the foetus. In this case, nothing is left but the extraction of the stone, either through the orifice of the urethra dilated for the purpose, if the stone has advanced near it, or through an incision made upon the stone if higher, into the substance of the vagina and urethra.

CCCCLXXXIV. A fungus, concretion, or stricture of the vagina or uterus have also been laid down as causes of slow delivery, in their more moderate degree (CCCL. 5.) ; but the extreme degree of these diseases forms occurrences of no small embarrassment, and generally of considerable danger, by totally prohibiting the passage of the foetus : this therefore renders the excision of the first, and the dilatation of the others absolutely necessary,

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according to the known rules of surgery.

CCCCLXXXV. A preternatural formation (LXVIII.) of the foetus in shape, may prevent its parts from being accurately distinguished, and in size or in the cohesion of two foetuses, may prohibit its passage through the pelvis. From the first case, a little embarrassment, but no danger can result; and from the second, as the danger will chiefly arise to the foetus, and that in proportion to its size or monstrosity, the occurrence seems not very lamentable which puts an earlier period to the life of a creature probably ill prepared to arrive at the perfection of its species.

CCCCLXXXVI. Whenever a monster (LXIX.) therefore is found absolutely too large to pass the pelvis, even with all the aids of slow delivery or of the forceps, recourse must be had to the scissars and crotchet, by which it is to be reduced and extracted, according to the established rules for the use of these instruments (CCCXXIX.). Or if a cohesion of two foetuses forms the difficulty, then this being

ing elongated if possible, or separated if necessary, one is to be delivered distinctly from the other, as in the plurality of fœtuses (CCCLXVI.).

CCCCLXXXVII. An Enlargement of the fœtus from disease, as in cases of dropfy, or from death by emphysema, may also, though rarely, cause some embarrassment. The first generally affects the head or the abdomen, the latter the abdomen or cellular membrane; and either is sufficiently known by the softness and fluctuation in the one case, and by the softness, elasticity, or crepitus in the other.

CCCCLXXXVIII. But whatever the enlargement or presentation may be, as soon as it is found to prohibit the farther passage of the fœtus, the indication is obvious, viz. to reduce the size by evacuating the fluid, which in general is easily effected by a puncture of the scissars, and a sufficient dilatation of this orifice.

CCCCLXXXIX. A separation of the body from the head of the fœtus left sticking in the pelvis, or loose in the womb,
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is an occurrence which happens chiefly from too great violence in pulling the body to bring away the head, or perhaps sometimes from great putrefaction of the foetus.

CCCCXC. A net, a noose, and various tire-têtes have been invented for the purpose of extracting it, no one of which has been found truly useful, as the evident indication is, to reduce the size of the head where it cannot be brought down, either by a hold of the remaining stump of the neck, if any, or by a hold of the lower jaw, with a finger or two in the mouth; either of which may perhaps be found sufficient when the head is small and the pelvis large, the head having been torn off from want of skill, in the extraction. In this case it is scarce necessary to observe, that the head should be brought through the pelvis in the same manner, and with the same turns as were directed when the body still adhered (CCCLIX.).

CCCCXCI. But as it is very seldom that the above mode can succeed, the head is to be reduced, by bringing the vertex to

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present in the brim of the pelvis, and by pressing it firmly in that position with the hands of an assistant until it is opened by the scissars, introduced into the sagittal seam or lesser fontanelle, and the brain being evacuated, as in the first scissars and crotchet case (CCCXXXI.), the head is to be next brought down by the hand or the crotchet.

CCCCXCII. Should it be found impracticable, however, to fix the head until it can be pierced or reduced, the forceps may certainly be applied upon it, with which it may be held sufficiently firm by an assistant, until the necessary reduction is effected, when the extraction may be performed by the forceps already fixed upon it.

CCCCXCIII. In whatever manner the delivery of the foetus may have been effected, it sometimes happens that the placenta does not descend in the natural manner described (CCXCIV.), but remains in the uterus, either from the strength of its adhesion to that organ, or from the contraction of its orifice before the detachment

ment has taken place ; to which add, that the umbilical chord sometimes breaks off, and that chiefly at the placenta, either from too much force used in pulling it, or from its great tenderness in premature births, or putrefaction, when the fœtus has been for some time dead.

CCCCXCIV. This occurrence, from vulgar prejudice, is frequently attended with infinite terror, though with very little danger to the woman ; therefore, whilst no symptom of distress, inconvenience, or danger urges, it seems officious and improper to offer useless aid ; nor are any bad consequences to be apprehended from this delay, as has been vainly imagined, though it might continue even for days : but the woman being put under the peaceful influence of an opiate, and nature continuing her successful though silent efforts, the placenta is often expelled in sleep, or in the first motions after awaking.

CCCCXCV. On the other hand, if this occurrence is attended with any peculiar symptoms of danger, or even of distress, as flooding, faintings, convulsions, or

very great agitation of mind, destroying rest, and creating heat and fever, &c. then the just indication arises, to extract the placenta by the hand, with which, being introduced into the womb, it is to be grasped, if already detached, but if not, it is to be gently and gradually separated, particularly around its edges, where it is mostly found to adhere, and is at length to be gently and cautiously brought down in the fingers.

CCCCXCVI. If the mouth of the womb is found contracted, it is to be gently dilated, and if the placenta is already detached it is easily distinguishable, both from clotted blood, and the substance of the womb, even without the direction of the chord, by its being more firm and fleshy than the former, but more soft and spongy than the latter; and if it adheres, it is also distinguishable by the same marks, as well as by the smoothness of its internal surface, with the large branching vessels upon it. — Farther,

CCCCXCVII. Should even the womb contract around it, when it adheres to the fundus,

fundus, and closing as it were at its middle, form the resemblance of a sand-glass, the case will easily be distinguished from a rupture of the uterus, by the continuity of the passage leading from the first cavity of the womb into the second, where the placenta will be found.

CCCCXCVIII. In whatever manner the placenta may have been delivered, but especially when hastily or forcibly extracted, a flooding greater than what is natural or safe for the woman (CCXCIV.) sometimes immediately ensues; to which the heat of the labour, especially if violent, or forced by cordials and a warm regimen, remaining scraps of placenta or membranes, a collapsed state of the womb, &c. may either contribute or give rise.

CCCCXCIX. In this case, as the danger is imminent, the relief should be speedy; and the indications are, 1. To remove all hinderance to the womb's contraction, by extracting any extraneous body that may remain in it. And, 2. To promote it, with the contraction of its vessels, by a proper pressure on the abdomen

men (CCCCLXVIII); by the use of strengtheners and astringents; and above all, by cold applied externally to the loins and pudenda, or internally to the vagina and womb.

D. The death of the woman before delivery might be justly deemed the last occurrence that can happen, had not even during that event some extraordinary instances of delivery occurred, either from the last efforts of nature even in her final agonies, or from the mechanical effects of those convulsions that so frequently close the scene in delivery, or even in pregnancy.

DI. These curious facts, with the possibility of the foetus surviving the mother, at least for a short space, if alive at the time of her death, naturally give rise to the final indication, of extracting the foetus by the speediest means possible, after her death is certainly known to have happened.

DII. But the general symptoms of death, where the cause does not decide its certainty, as in cases of mortal wounds, &c.

&c. being fallacious and equivocal until putrefaction takes place, before which the foetus must perish, rendering the usual means, by opening the body, or even by the Cæsarean operation, imprudent; it appears to be, not only the most natural, but the most safe and speedy mode, to extract the foetus by the feet, through the natural passage, wherever this will admit it; but if the pelvis is found too narrow, and the foetus judged alive, then indeed it may be proper to extract it by the Cæsarean operation.

P A R T IV.

R E C O V E R Y.

DIII. **T**HE fourth part of Midwifery treats of Recovery, or the transition to the sound from the infirm state consequent to delivery.

DIV. Recovery is two-fold, 1. Of the Mother. 2. Of the Infant. And each is, 1. Natural; or, 2. Preternatural.

NATURAL RECOVERY OF THE MOTHER.

DV. The Natural Recovery of the Mother, is when the above transition (DIII.) is effected without interruption from disease.

DVI. The infirm or weak state of the mother naturally consequent to delivery, seems to arise from—

1. The general fatigue occasioned by delivery.
2. The evacuation of the uterus and abdomen.
3. The loss of blood.
4. The increased irritability of the nervous system.

DVII. The transition again from this to a sound state, seems to arise from the efforts of nature gradually removing the effects of the foregoing causes, generally in the following manner :

DVIII.

DVIII. Ease and rest are no sooner restored than the exhausted strength and spirits are in general repaired by refreshing sleep.

DIX. In the mean time, the contractions of the womb continuing under the denomination of After-pains, though generally slight and sometimes imperceptible, especially in first births, soon reduce as well the dimensions of its cavities, as of its blood-vessels to their natural figure and size in the unimpregnated state (XXV.). For the space of several days however, whilst this is effected, the substance of the womb is of a very extraordinary thickness, gradually decreasing, as it assumes its proper form, whilst the orifices of the vessels on its inner surface, at first more open, discharge red blood; but being gradually contracted, and mostly filled with coagula of blood, soon change this discharge to an ichor, and then to serosity, blended also with a kind of purulent matter from the whole internal surface of the womb, which bears at this time an unequal or scabrous
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pearance, especially where the placenta adhered.

DX. This general discharge, known by the name of Lochia, is various in duration, quantity, and consistence. It commences slowly after the flooding, which immediately succeeds delivery has ceased or greatly abated. It soon increases to its greatest quantity, which may in general be estimated from two or three, to six, eight, or ten ounces per day; and then gradually diminishes for a various space of time, when it mostly ceases in the course of from ten to twenty days, though sometimes continuing much shorter, in the course of a very few days, and at others much longer, even to forty, fifty, or sixty days. It is in general proportionally scanty or plentiful according to its duration.

DXI. It is generally first sanguineous, next ichorous, then ferous or milky, and frequently purulent, especially in the latter stages; it is first of a red, then reddish, green, yellow, or white colour; and of a strong animal smell, which also taints the
breath

breath and perspiration; but it is sometimes brown, livid, or black, when it is of a still more putrid odour.

DXII. A sound constitution, a good habit of body, a masculine frame, a rigid fibre, a laborious mode of life, and a cold climate or season, yield in general less of the lochia, and vice versa.

DXIII. The due evacuation of the milk also lessens the discharge, whilst its obstruction, if unattended with fever, increases it, and not unfrequently occasions a return of the sanguineous discharge; which is likewise apt to be renewed from several other causes, viz. too great motion, passions of the mind, too early indulgence in coition, &c.

DXIV. In miscarriages and abortions, the nearer the woman has arrived to the full period of pregnancy, the more plentifully do the lochia supervene, and vice versa.

DXV. Thus this discharge appears to be the natural effect of the speedy and astonishing reduction of the womb to its unimpregnated condition, variously modified

fied by the foregoing circumstances ; and its great use is, the easier to admit such reduction without evil consequences to the mother, which never fail to happen when it is suddenly suppressed.

DXVI. The reduction of the womb is consequently accompanied with the contraction of the parietes of the abdomen, which thus reduces the belly nearly to its original shape and size, remaining however marked with a kind of superficial cicatrices and wrinkles of the skin.

DXVII. But the œconomy of the mother, habituated to the important process of generating, and preparing nourishment for the foetus, continues this excellent function even after their separation by delivery ; and though the mode of its preparation and exhibition must materially vary from what it was in the unimpregnated state, yet so provident is nature, and so perfect in her operations, that it is as certainly found as it is sought, even at the earliest period at which it can be required ; and the process of its formation seems to be as follows :

DXVIII.

DXVIII. Upon the fore and external part of the thorax, on each side the sternum, lies a large conglomerate gland, the interstices of whose lobules being filled with fat, assist in raising it into a beautiful, round, smooth, projecting, conoid tumour, known by the name of Mamma.

DXIX. From the apex of the mamma rises a small, round, soft, elastic, spongy body, called the Nipple, which, in a quiescent state, is generally flaccid, but capable of turgescence from gentle irritation. It is of a brownish colour, and is surrounded by a little circle on the mamma, of the same colour, called Areola, which is thickly studded with small sebaceous glands, and with the end of the nipple, appears thick set with little papillæ, of exquisite sensibility.

DXX. The glandular parts of the mammæ are composed of an infinite number of small, round, firm lobules, or minute glands, which are supplied with small branches of arteries and veins from the external and internal mammaries: from these lobules arise small, slender, whitish ducts

ducts or canals, covered with pretty firm elastic coats from the glands, running towards the nipples, and frequently uniting, so as to form larger canals, called the Lactiferous Tubes; which being at length diminished to the small number of seven or eight, enter the nipple at its base; whence continuing without farther communication, they open amongst the little tubercles on its apex.

DXXI. The mammæ are plentifully supplied with nerves from the intercostals and like other glandular parts, have a large share of lymphatics.

DXXII. The mammæ are observed to sympathize materially with the organs of generation in all their operations, and particularly during the discharges of the womb, to become comparatively flaccid, and in the obstruction or suppression of these discharges, again to become turgid.

DXXIII. During gestation it has been observed, that a plethora in general exists, and that the discharges of the womb must be suppressed, whence a turgescence of the mammæ, with a small serous secretion in them

them constantly attends, which may be considered as a preparatory process to that which shortly ensues delivery; when, by an abatement of the determination of the blood to the womb, it is thrown more copiously upon the mammæ, now prepared to receive it; and thence to seern or separate that whitish, mild, sweet, thin, spontaneously acescent, oleo-mucilaginous, and nutritious fluid, called Milk.

DXXIV. But that this determination of fluids, from the uterus to the mammæ, is not influenced by an anastomosis of the epigastric, with the mammary arteries, appears from this communication being too trivial for the purpose, and from its being contrary to the laws of the circulation, that the blood should move in the arteries, from their extremities towards their trunks.

DXXV. The secreted liquor found in the mammæ immediately succeeding delivery, is nearly the same as it had been during gestation, viz. more serous, sharp, and alkaline than the perfect milk, whence called Collostrum, for a few days, during which,

which, being duly evacuated, the secretion soon changes into the pure milk.

DXXVI. That the milk is a secretion from the yet chylous part of the blood, seems deducible from the great similitude of these liquors in almost all their qualities, together with the very great quickness with which this secretion is effected after the assumption of aliment, and its still retaining a considerable share of the qualities of whatever food it is derived from.

DXXVII. This secretion being thus found as early as the new-born infant requires the use of food, so continues, with little variation, whilst the weak state of its chylopoietic viscera stands in need of aliment, so easy of digestion and of assimilation; and it may, by keeping up the discharge of it by a humid or forbile course of diet, and perhaps by abstinence from coition, be continued much longer; though by the contrary means, especially in this luxuriant country, it is frequently obstructed in quantity, or vitiated in quality too soon.

DXXVIII.

DXXVIII. When the colostrum and milk are duly evacuated, there is no such fever as authors have constantly described to be necessary to the commencement of this secretion, about the third or fourth day after delivery.

DXXIX. From the general relaxation induced by the copious evacuations succeeding delivery, and from the particular mode of life, an increase of perspiration, with a decrease of the grosser discharges of stool and urine, is generally occasioned for the first days after delivery, until the natural evacuations having taken their due course, the tone of the fibre is gradually recovered, and its strength restored.

DXXX. Thus, in a various space of time, from a few days, to two, three, or four weeks, is the transition generally made from the infirm to the sound state, consequent to delivery; and as it is conducted by the hands of nature herself, the chief object or intention of art must be, not to counteract, but to forward her operations, by a due attention to the non-naturals, viz.

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1. The air should be preserved of a due temperature, neither so warm as to increase the natural tendency to heat and fever in the body, nor so cold as to check the perspiration, and of course the two other important discharges of the lochia and milk. It should also be duly renewed, by a free access of fresh and pure air.

2. The diet should be spare, light, easy of digestion, and chiefly forbile and vegetable, especially for the first few days, whence it may be gradually changed as the body recovers its strength, to the proper diet of a healthy person.

3. Sleep is to be by all due means promoted, as nothing more effectually refreshes the body, renews the spirits, and restores the strength: and watching is to be carefully avoided, as promoting heat and feverishness, and interrupting the natural evacuations.

4. Motion, having the same effects as watching, is to be as much avoided; and rest, having nearly the same as sleep, is to be carefully promoted.

5. A retention of the natural evacuations is at all times attended with bad effects; but in the extreme delicate and infirm state succeeding delivery, when the evacuations are of still greater importance than at any other period, their retention must be closely connected with the most dangerous consequences: their natural excretion is therefore to be by every due means promoted and supported, viz. the lochial discharge, principally by moderate warmth and great cleanliness; the milk, by natural or artificial suction timely applied, and duly repeated or continued; the perspiration, by tepid diluting drink; and the urine and stool, by opening food or gentle eccoprotic and diuretic medicines soon after delivery; and finally, by a few doses of gentle physic, when the strength is sufficiently recovered towards the end of the month, especially if the lochia have been scanty, or if the woman does not give suck.

6. Lastly, passions of the mind, from their various and alarming effects upon the

body, especially in so delicate a situation, are to be most carefully guarded against.

PRETERNATURAL RECOVERY OF THE MOTHER.

DXXXI. The Preternatural Recovery of the Mother, is when the transition to the sound from the infirm state consequent to delivery is interrupted by disease arising from the puerperal state, which may be considered as follows.

DXXXII. Faintings (CCCLXVIII.), convulsions (CCLVII. and CCCCL.), hysterics (CXXXV.), flooding (CCLXV. and CCCCXCVIII.), prolapsus and inversion of the uterus (XCVII. and CCCCLXXX.), and hæmorrhoids (CCXLVIII.), though they frequently arise from the puerperal state, yet having been already considered under other heads, require little farther illustration.

DXXXIII. In lacerations of the parts (CCCCLXXI.), the curative indications are, 1. To keep the sides of the wound as closely and as constantly applied to each other

other as possible: this is better effected when the laceration is in the perinæum, as it most frequently is, by keeping the thighs together, than by future, which is found generally impracticable, and often more dangerous than the disease it is intended to remove. 2. To keep the parts clean, by frequent injections of soft tepid liquors. And, 3. To obviate inflammation and fever, by a cool regimen, gentle physic, and saline draughts, and by frequent emollient fomentations and cataplasms.

DXXXIV. A contusion of the vagina or external parts may arise from the pressure of the head of the foetus in slow delivery, from the abuse of instruments, or from violence by the hands.

DXXXV. It is generally attended with pain, inflammation, and fever, and sometimes with a suppression of urine; and terminates by resolution, suppuration, gangrene, or schirrus. The first is known by the gradual abatement of the symptoms. The second by a throbbing super-vening the pain, with sometimes slight

horripilations, succeeded by a purulent discharge; and the third by intense pain at first, with a very small, hard, quick, and often irregular pulse; then the pain is apt to cease suddenly, and the lochia to become brown, dark, and putrid: if the gangrene extends far, the countenance becomes tawny, and the internal lining of the vagina is apt to slough off in portions, or perhaps entirely. The last termination is more slow, and has been considered as a distinct disease (CI.).

DXXXVI. There is a peculiar kind of contusion of either one, or both of the labia magna, and sometimes of the perinæum, arising, especially in very young or very elderly women, and happening chiefly in natural deliveries, from the distension of the external orifice, in passing over the child's head, by which some of the internal vessels of these parts seem to be lacerated, and an extravasation of blood takes place, distending the part, and exciting exquisite pain, tension, &c. until the tumor bursts, when there is a great discharge, chiefly of black putrid blood.

DXXXVII.

DXXXVII. The indications of cure are, 1. To promote resolution, and obviate the fever, by an antiphlogistic regimen, gently cooling saline purgatives, and by frequent emollient fomentations, injections, and cataplasms. 2. In case of a suppression of urine, to draw it off by the catheter. 3. In case of suppuration, to cleanse and heal according to the rules of surgery. 4. To obviate a gangrene by antiseptics, especially the free use of the Peruvian bark.

DXXXVIII. An incontinence of urine frequently succeeds the foregoing disease (DXXXIV.), when either suppuration or gangrene takes place in that part of the vagina which joins the bladder; the loss of substance being continued through both organs, a hole is formed, through which the urine keeps up a kind of constant dripping or discharge; and being thus lodged on these tender parts, excoriates them in the most miserable manner, with the most tormenting soreness and smarting; nay, it is sometimes so sharp, as to excoriate the external parts, and inner sides of

the thighs, even to the knees. This distase may also arise from the abuse of instruments, when the bladder is much distended with urine, rupturing it; in this case it immediately succeeds delivery, whereas the former does not commence until a few days after, in which time the symptoms of inflammation have appeared. An incontinence of urine may also indicate a state of paralysis in the sphincter of the bladder, from the pressure of the child's head upon it; in which case the urine is readily perceived to come through the urethra.

DXXXIX. The indications of cure are, in the two first cases, 1. To prevent the passage of the urine through the vagina, by keeping it accurately filled or stuffed with soft lint or tow dipt in any soft healing ointment. 2. To prevent the distension of the bladder from enlarging the hole, by frequently emptying it. In the third case, to strengthen the tone of the relaxed part by general strengtheners, as the bark, lime-water, and the cold bath, or by blisters applied to the sacrum.

DXL.

DXL. After-pains (DIX.) are very frequently so strong as to create considerable uneasiness for a few days after delivery, especially in women of a lax fibre, where the labour has been easy, and the lochial discharge is plentiful, or perhaps a little obstructed. This excess of these pains amounting to disease, seems to arise from a slowness in the contraction of the womb, by which concretions (LXV.) of blood are frequently formed in it, that cause a still farther increase of pains towards their expulsion, especially if scraps of placenta or membranes also remain; and in some these complicated pains are more severe than even labour itself. They are also said to arise from flatulence in the bowels, and from unequal contractions of the womb, or from slight injuries sustained by its fibres in delivery.

DXLI. The indications of cure are, to soothe pain and abate spasm, chiefly by opiates in full doses occasionally repeated, and sometimes united with other antispasmodic, as castor and asafœtida.

DXLII.

DXLII. 1. An obstruction of the lochia (DX.) is a deficiency of the natural quantity of this discharge. And, 2. A suppression is a total stoppage of it.

DXLIII. The causes of these complaints are, cold applied to the body externally or internally, as cold air, cold cloaths, cold drinks, &c. a catarrhal cold, abuse of astringents, rich, strong, or high seasoned food, damp, foul, or impure air, passions of the mind, fever, or an inflammation of the womb : all which seem to operate as occasional causes, whilst the proximate cause appears to consist in spasm.

DXLIV. The symptoms are, pains of the back, belly, and head, with heat, restlessness, and uneasiness ; difficulty of breathing ; oppression ; rigors, horripilation, and fever ; inflammation of the womb, or of some of the abdominal or thoracic viscera ; phrenitis ; frequently madness, and sometimes convulsions or apoplexy ; internal or external abscesses, with frequent metastases of their matter ; colic, diarrhæa, or dysentery, and hæmorrhoids.

DXLV.

DXLV. The indications of cure are,
1. To remove the occasional causes as far as is practicable. 2. To obviate the symptoms. 3. To relax spasm, and restore the discharge; by venesection, if there is inflammation or plethora; by emollient fomentations, injections, and glysters, and perhaps by pediluvium, semicupium, or the warm bath; by an antiphlogistic regimen; and by repeated opiates, joined with the milder emmenagogues, if not contra-indicated by inflammation. 4. To promote the other discharges, especially of the milk by suction; of the perspiration by diaphoretics; and of stool by gentle physic or glysters.

DXLVI. A profusion of the lochia is an excess of that discharge, to be determined only by its morbid effects, as the quantity of the discharge is so very various (DX. &c.). It is generally more or less sanguineous, and sometimes brown and putrid.

DXLVII. The causes are, a relaxed state of the solids; a cacochymic state of the fluids; a diseased state of the womb;

or

or a critical effort of nature to relieve some other disease.

DXLVIII. The symptoms are, debility, inanition, thirst, anorexia, paleness, leucophlegmatia sometimes succeeded by dropsy, faintings, horripilations, and slow fever.

DXLIX. The indications of cure are,
1. To support the patient by the most nourishing, strengthening, and inkrassating diet, with small quantities of astringent wine. 2. To brace the solids, and correct cacochymy by tonics and astringents, especially the Peruvian bark, and elixir of vitriol.

DL. 1. A diarrhœa is a frequency of loose stools. And, 2. A dysentery is the same, with gripes and tenesmus, and frequently the addition of blood in the discharge, and of fever.

DLI. Their causes are, bilious or other fordes in the primæ viæ, or improper food; but much more frequently the salutary crisis of some of the obstructed discharges, or of some other disease, whence never to be altogether stopt, and the former seldom restrained.

DLII,

DLII. The curative indications are,
1. To evacuate all peccant matter, either lodged in, or thrown upon the intestines, by small doses of gentle physic. 2. To moderate the discharge and soothe the uneasiness of the bowels by opiates, if not contra-indicated by inflammation. 3. To promote the natural discharges.

DLIII. A colic is a pain in the intestinal canal, to which puerperal women are frequently liable from the very tender state of their bowels.

DLIV. The causes are, cold or flatulent ingesta, and an obstruction or suppression of the natural evacuations.

DLV. The indications of cure are,
1. To cleanse the bowels with gentle carminative physic. 2. To soothe pain, and remove spasm by antispasmodics, especially asafoetida and opiates, exhibited in carminative glysters. 3. To restore the natural discharges.

DLVI. A luxation of the symphysis of the pubes, and sometimes of the synchondrosis of the ilia, with the sacrum.

DLVII.

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DLVII. The causes are, a lax state of the solids, a narrow pelvis, or large foetus, with excessively strong labour.

DLVIII. The symptoms are, in the first case, pain and gritting motion in the symphysis of the pubes. In the second, severe pain in the hips, with an incapacity of holding the body erect, from a painful sensation, as if it were sinking.

DLIX. The indication of cure is, to brace the solids by general and topical strengtheners, as the bark, cold-bath, and strengthening plasters.

DLX. An excoriation of the nipples, chiefly from suckling, is relieved by astringent lotions and plasters.

DLXI. A fever is a frequency of pulse, generally attended with heat, thirst, debility, sickness, and anorexia, and most commonly, if not always succeeding horripilation.

DLXII. There is no state of the human body in which it is so liable to fever as the puerperal, and though its frequent occurrence must also afford considerable variety,

riety in its kind, yet it may be reduced to the two heads of, 1. General, as equally affecting the whole system; or, 2. Topical, as more particularly derived from local affection.

DLXIII. The ephemera is the simplest and shortest species of fever; it is also in the puerperal state by much the most common, and in Ireland and Scotland, is vulgarly known by the name of the Weed.

DLXIV. Its causes are, any of the numerous and various errors that may be committed in the non-naturals (DXXX.).

DLXV. It is generally preceded by hunger, lassitude, yawning, and slight wandering pains. It commences with horripilation, frequently so considerable as to resemble the cold fit of an ague, which is attended with paleness of the skin, head-ach, pains, nausea, vomiting, a quick, small, unequal, irregular pulse, and thin limpid urine. This is called the first stadium, which generally soon changes to the second; this is attended with heat, a dry skin, difficulty of breathing, anxiety, restlessness, increase of head-ach and pains, thirst,

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thirst, pulse more full and strong, and less quick than before, and the urine more scanty and high coloured, with a redness of the face. This lastly yields to the third stadium, in which a sweat generally breaking out, with perhaps a sediment in the urine, the symptoms become gradually milder, and in the space of from a few hours to that of a few days generally disappear.

DLXVI. The indications of cure are,
1. To remove the causes. 2. In the first stadium, to relax the cutaneous spasm, and promote heat and perspiration by tepid diluting drinks, with mild diaphoretics.
3. In the second stadium, to obviate the heat and fever by a cooling antiphlogistic regimen, and to produce and support perspiration by diaphoretics. 4. To support the natural evacuations.

DLXVII. But the continued fever sometimes extends beyond the limits of the ephemera, when the symptoms are not in general so strongly marked at the beginning; and to those already mentioned, may be added these that follow; a disagreeable

agreeable, nauseous, or bitter taste, costiveness, twitchings, startings, raving, hiccup, difficulty of swallowing, involuntary or insensible passage of urine and fæces, coma, convulsions.

DLXVIII. At the beginning of such fevers there are sometimes symptoms of a general inflammatory diathesis, such as severe pains, great heat and thirst, with a dry skin, and full strong pulse; but towards the end it is more apt to assume the form of the low nervous, or sometimes, though seldom, of the putrid malignant fever; and miliary eruptions have been so frequent as to induce many authors to consider them as constituting a distinct genus of puerperal fever.

DLXIX. But in the puerperal state, these various appearances are to be considered rather as modifications or species of the same disease, varying only from constitution, temperament, or habit, and treatment, than as so many distinct genera. Thus, a fever, when excited perhaps by passions of mind, assumes the inflammatory diathesis in a healthy strong mascu-

line woman of rigid fibres, and a dense state of the blood, especially if her discharges have been scanty; but in a delicate, weakly, hysterical woman, whose evacuations have been rather profuse, a fever excited by the same cause may assume the form of a low nervous fever; and if the juices have been previously in a dissolved state, and the woman kept in a noisome putrid atmosphere, it may even happen, that symptoms of malignancy and putrefaction will arise, especially towards the end of the disease: lastly, a warm cordial regimen, with constant sweats, seldom fail to produce miliar eruptions, which without this scarcely ever occur, and which are generally preceded by great oppression, anxiety, dejection, and sometimes even by faintings and convulsions; which symptoms are generally relieved by the eruption, and return on its disappearance, whilst the fever continues.

DLXX. The indications of cure, besides these already mentioned (DLXVI.), are, in the first case, to remove the inflammatory

flammatory diathesis by venesection, and the antiphlogistic regimen. 2. In the second, and the last, to support the patient by moderate cordials, and excite the vis vitæ by blisters. 3. And in the third, to correct putridity by great cleanliness, a pure air, and antiseptics.

DLXXI. General Fever may also arise sometimes from the great inanition consequent to excessive flooding, or the extreme profusion of the lochia, and is attended with these peculiar symptoms: very great debility and paleness, with considerable thirst, a very weak and extremely frequent, small, fluttering pulse; and a peculiar strong, painful, throbbing sensation in the head.

DLXXII. The indications of cure are, 1. To supply the loss of blood, and restore strength by the most nutrient, restorative, forbile food, in small quantities frequently exhibited. 2. To support the vis vitæ by gentle cordials, and the tonic power of the Peruvian bark.

DLXXIII. Besides the symptomatic fever, arising from the various lacerations,

and contusions mentioned (DXXXIII, & seq.), there are three distinct kinds of fever, which may be considered as arising from the inflammation of particular parts.

DLXXIV. The Milk Fever, is an ephamera, proceeding from an obstruction of the milk in the mammæ, particularly when not duly evacuated in the first days after delivery; it therefore generally commences upon the third or fourth day, and is peculiarly preceded and attended with fullness, tumefaction, tension, and pain of the mammæ, and frequently of the axillary glands. This state of inflammation again is liable to terminate by resolution, suppuration, and schirrus: the first is known by the abatement of the symptoms, often attended with copious sweats, a gentle diarrhæa of curdled stools, or iliac abscess; in any of which cases, the milk mostly disappears and cannot be restored, but it is more frequently attended by a discharge of milk from the nipples, either spontaneous or solicited, when this useful secretion continues. The second is known by an aggravation of
symp-

symptoms, great redness, shining, burning heat, and throbbing of a particular part of one or both mammæ, with frequent horripilations. And the last by an indolent hardness remaining.

DLXXV. The indications of cure, are,
 1. To resolve the inflammation, which is chiefly effected by giving due vent to the milk by suction, either natural or artificial, by emollient and discutient fomentations and cataplasms; and by the antiphlogistic regimen, particularly the repeated use of cooling, saline purgatives.
 2. When the suppuration is commenced, to bring it to a perfect state of maturation, by warm maturing poultices. And 3. When this is effected, to give the matter a free vent, and to treat the abscess according to the known rules of surgery; but when indurations, or scirrhus tumours, are formed, the chief indication is, lastly, to obviate cancer by an antiphlogistic regimen, and the most regular course of life, carefully avoiding all pressure, or irritation of the part.

DLXXVI. Hyfteritis is an inflammation of the womb, attended with a most acute fever.

DLXXVII. Its causes are, an injury in delivery, obstruction, or suppression of the lochia (DXLII.), or too strict a bandage of the belly.

DLXXVIII. Its symptoms are, besides pyrexia, a constant shooting pain, with great tenderness and tension in the hypogastric region, where the uterus may be felt through the parietes of the abdomen extremely hard, tender, painful, and much larger than natural, for the period after delivery; vomiting, intense head-ach, and most commonly delirium, with a strong full pulse.

DLXXIX. This inflammation is liable to terminate in resolution, suppuration, gangrene, or schirrus; which are principally known, as in the contusion of the vagina (DXXXV.), except that in the first case, a copious discharge of sanguineous lochia is apt to take place; in the second, of purulent matter, or instead thereof,

thereof, an iliac abscess; and in the third, death.

DLXXX. The indications of cure, are,
 1. To effect a resolution by venesection, emollient fomentations, injections, and glysters, and the most antiphlogistic regimen, particularly small quantities of cooling saline purgatives frequently repeated.
 2. To promote the other evacuations. 3. To obviate a gangrene by antiseptics, especially by the free use of the bark in saline draughts.

DLXXXI. A simple peritonitis is an inflammation of any part of the peritoneum. 2. A complex peritonitis is the same, extending to any one or more of the abdominal viscera which it covers. The disease generally appears in child-bed, and is always attended with pyrexia, which has been lately distinguished by the name of the Puerperal Fever, but improperly, as it is by no means so common in that state as the ephemera (DLXIII.), and as it is not confined to it, nor even to the female sex*.

DLXXXII.

* The author has seen many cases of this disorder, not only in the pregnant state, but some in men; and

DLXXXII. The causes of these complaints. The extreme tender and delicate state of the abdominal viscera, especially in their external covering, from the peritonæum, caused, first by the compression of the enlarged uterus during pregnancy; and secondly, by its sudden contraction after delivery, when perhaps a quantity of air makes its passage into the cavity of the abdomen, through the open womb and Fallopian tubes, seems to act as the prime predisposing cause; whilst errors in the non-naturals, but especially an impure atmosphere, or a hot cordial regimen, act as the occasional causes, in producing either, first, fever, which excites inflammation, or in exciting inflammation, which produces fever: but however this may be, whoever closely attends to the disease, as it actually appears to arise, must be as

has been present at the dissection of bodies, who fell victims to the disease in both instances; where not only the general diagnostic symptoms had been, but the morbid appearances after death were also the same as he has generally met with in a multiplicity of cases of puerperal fever, and in many dissections of bodies who died in it,

fully

fully convinced of its primarily consisting in a state of inflammation, as he is, that pleurisy, or peripneumony, consists in the like state*.

DLXXXIII. This inflammation seems particularly to affect the omentum, though it is generally extended, not only to the

* Two striking cases have occurred to the author, which are thought sufficient to place this fundamental principle of the disease, which seems to be not only doubted by some, but controverted by others, beyond the reach of cavil or dispute.

Two women, at different times, immediately upon delivery were seized with all the principal symptoms of puerperal fever, in their most virulent degree, which continued in spite of all endeavours to relieve them, in the one for five, and the other for six days, when both died. Upon opening the bodies, in each the omentum was found lacerated nearly at its middle, almost entirely across from side to side, the upper portion still adhering to the parts from whence it is naturally suspended; but the under part having at its lower edge formed a firm and close adhesion, as in other cases of inflammation, to the external surface of the fundus uteri, was dragged down along with it into the brim of the pelvis, whence only the laceration could have proceeded: the torn edges were in a gangrenous state, the rest highly inflamed, partially suppurated, and much wasted, with serous liquor, and clots of fatty and caseous matter in the cavity of the abdomen; the stomach, and intestines, appeared also considerably inflamed and adhered in many places.

stomach

stomach and intestines, but, in a lesser degree, to all the other viscera, and is liable to terminate by, 1. resolution; 2. transfusion from the omentum and mesentery; 3. suppuration; and 4. gangrene.

DLXXXIV. The first termination chiefly happens when the disease is moderate, or when it has been properly treated in due time, and is known by an abatement of the symptoms, which is almost always attended by a critical diarrhæa; but if this crisis is not very perfect the symptoms are extremely liable to return after a short cessation.

DLXXXV. The second and third terminations are generally more or less combined, and mostly happen when the disease has not been properly treated very soon after its commencement. They are chiefly known by a continuation of the symptoms, with some mitigation after the fourth day, by fresh horripilations, and by the swelling of the belly, sometimes to a very great size, with evident fluctuation.

DLXXXVI.

DLXXXVI. This second event of the disease never fails to produce a material change in it, or rather indeed a metamorphosis of it, into an another disorder; which is an evident hectic fever, arising from the absorption of the fluid extravasated in the abdomen, and attended generally with diarrhœa, and frequent metastases of the matter, particularly upon the joints of the extremities, very much resembling the acute rheumatism, and sometimes an iliac abscess.

DLXXXVII. The fourth termination generally happens in the worst degree of the disease, in about four, five, or six days from its commencement; and may be foreseen from the extreme severity of the symptoms, and by their sudden abatement whilst the belly continues enlarged, and the pulse sinks, growing still quicker and irregular; and it is constantly and necessarily attended by death.

DLXXXVIII. Besides those of fever already mentioned, the distinguishing symptoms are shooting pains, more or less severe, through the epigastric, or umbilical

bilical regions, but generally at the pit of the stomach, with a peculiar tenderness and foreness of the abdomen when pressed by any cause, as the hand, the bed-cloaths, or the action of coughing, or sneezing, &c. vomiting, more or less severe and constant, according to the degree of the disease, and chiefly of a bilious matter. At the beginning of the disease there is almost always a costiveness, which is more or less obstinate according to its severity, but which never fails to change into a diarrhœa, which is mostly also proportioned to the violence of the disease, and very often becomes a symptomatic dysentery, as it may be called, of the most severe kind, being sometimes attended with the most tormenting gripes, borborygmi, and tenesmus, and often the involuntary discharge of the fæces, which have become thin, watery, bilious, and acrid; the abdomen swells and becomes turgid, particularly between the stomach and navel, and in some time is apt to lose the great sensibility and tenderness, with which it was
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at first affected. There is generally a head-ach and chiefly in the temples, or over the orbits of the eyes, which with a peculiar debility, anxiety, and oppression, is also proportioned to the violence of the disease, being in some cases moderate and in others distressing to the utmost degree; the pulse is constantly attended with a peculiar rapidity, seldom beating less than one hundred and twenty strokes in a minute, but frequently upwards of one hundred and forty. A treacherous remission very frequently occurs in about twenty-four hours after the first attack of the disease, which is sometimes repeated less distinctly, but is never to be trusted as a sign of safety; though these symptoms are liable to the utmost variety in their degrees of severity and mildness, yet in general they are sufficiently marked to distinguish the disorder, as clearly as any other can be by its peculiar symptoms.

DLXXXIX. The indications of cure are, 1. To remove as much as possible
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the occasional causes. 2. To resolve the inflammation by the most antiphlogistic regimen, and particularly by cooling saline purges, early and repeatedly exhibited, and by fomenting the abdomen. 3. To obviate the symptoms, particularly vomiting, by evacuating and correcting the putrid bile by plentiful draughts of a strong infusion of the flowers of chamomile, repeated as often as the vomiting recurs; and those of the gangrene by antiseptics. 4. To promote the natural evacuations, particularly that of milk by suction; and perspiration by antimonials, which also coincide and powerfully co-operate with the medicines under the other intentions. 5. In case of hectic fever, with an extravasation in the abdomen, to evacuate the fluid, especially by frequent purging, perhaps by tapping. 6. And lastly, in case of a metastasis to the extremities, or iliac abscess, to solicit the humours, as much as possible to the part, by warm emollient cataplasms, and to evacuate them as early

early as possible by the usual surgical means*.

DXC.

* From the great and acknowledged fatality which has hitherto attended this disease, even under the most judicious treatment that has been yet adopted by other practitioners, the author thinks it his duty to lay aside the fear of being esteemed the puffer of his own practice, and freely to declare the success of it; in this instance, it is with great pleasure then that he is able to assure the reader, that he has rightly understood the nature of this disease as now laid down, and of course has pursued the foregoing simple system of practice; he has not found a disease of equal apparent danger, nearly so obedient to the laws of medicine; all dangerous symptoms almost constantly vanishing upon the early and repeated use of the chamomile infusion, and upon the use of a saline mixture, generally as follows:

R Sal. absynth. ℥ij. fuc. limon. rec. q. s. ad satur. aq. menth. v. simp. ℥viij. sal. Rupellens. ℥i℥. vel ℥ij. tart. emet. gr. i. fyr. e fuc. limon. vel e cort aurant. ℥ij. M. cap. cochl. ij. iij. vel iv. ampla secunda vel tertia quaque hora.—Tunc purgat in usu julep. salin. cum tart. emet. omitt. sal. rupel.

The tartar is frequently omitted in the first mixture, but added in larger quantities in the others, and whenever the stomach rejects the medicine, it is given in smaller quantities every hour: and where symptoms are urgent, the purging mixture should also be given every hour, or even half hourly.

This practice the author first introduced several years ago into the oldest lying-in hospital in the British dominions, and still one of the greatest, where he happened to serve as assistant physician at a time when the disease appeared in its utmost latitude, and where

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NATURAL RECOVERY OF THE INFANT.

DXC. The Natural Recovery of the Infant, is its transition from the foetal to the infantile state in an uniform progression after its birth, and without interruption from disease, which generally happens in the following manner.

DXCI. A free passage for the external air to the larynx of the foetus is no sooner made by its birth, or even sometimes by the birth of its head, than the air rushes into the lungs, and by inflating them commences respiration, which continues ever after necessary to life.

DXCII. What the immediate cause is which effects this absolutely necessary and important change seems doubtful; but

its success is now established beyond the possibility of a doubt, by the constant experience of several years. He has likewise found it equally successful in private, and thinks it necessary to observe that he has tried every mode of practice that he had seen recommended by others, or could himself devise, and found none really successful but the above; bleeding and stronger vomits he almost constantly found injurious, and nitre of no material efficacy.

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that it is not the weight of the atmosphere forcing its air into the lungs as into a vacuum, is apparent from there being no real vacuum in the lungs or thorax of the foetus: it seems therefore more probable that the action of the intercostal muscles and diaphragm, excited by some unknown cause, expands the cavity of the thorax by raising its ribs, and thus forms a real vacuum into which the air immediately rushes.

DXCIII. In consequence of the circulation through the placenta being stopt, and that through the lungs rendered free, various changes are made in the sanguineous system. The foramen ovale, with the canalis arteriosus and venosus, are speedily closed up so as never afterwards to be capable of transmitting blood, and the circulation is almost instantaneously performed as in the adult.

DXCIV. The bodies of new-born children are covered with a glutinous scurf, which should be cautiously removed be-

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fore the child be dressed ; for this purpose,
a little soap, wine, or spirits, mixed with
warm water may be used ; and if the fur-
ring is not easily washed off the first day, it
must be removed on the subsequent. Clean-
liness, indeed, is so necessary to children,
that bathing them every day, for some
years, has been recommended, not without
good reason by some. After the first week,
the water may be used cold.

DXCV. The next thing to be attended to
is the cloathing, which should be put on
as speedily as possible, the child being
very liable to catch cold on account of the
great change in the temperature of the
surrounding fluid. Its dress should be
warm at first, and afterwards be made
lighter. It should always be simple and
of easy application, without pins, and
with as little confinement as possible.

DXCVI. The principal attention to the
preserving of the health of children, as
well as adults, should be directed to the
non-naturals.

DXCVII

DXCVII. The room in which they are kept should be large, and the air, cool, free, and pure. A city atmosphere is, therefore, extremely hurtful to them. They should also be kept as much in the open air as may be.

DXCVIII. Their food should be the mother's milk; or if that cannot be allowed, the milk of some healthy young woman, who has lately been delivered, and who has a breast well supplied with milk. She should be sober, chearful, and regular, and her milk thin and sweet. Her manner of life should be little changed.

DXCIX. Children should have their exercise proportioned to their tender years, violent tossing or agitation being very improper for them.

DC. The principal secretion which needs attention is that by stool. The first milk of the mother is almost always sufficiently laxative to carry off the meconium, the name given to the black stuff

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collected in the intestines previous to delivery. If this should not be the case, a little brown sugar alone, or mixed with fresh butter, will be sufficient, or at the most manna, or magnesia.

DCI. The passions of the mind, together with sleep and watching of children, seem to require little regulation, except coinciding as much as possible with their own desires.

DISEASES OF INFANTS.

DCII. The diseases of infants may be divided into, 1. Such as exist before labour comes on. 2. Such as are occasioned by delivery. 3. Such as arise during a few weeks afterwards.

DISEASES EXISTING PRIOR TO DELIVERY.

DCIII. Sometimes the tongue is so tied down by the frenum, that the child cannot lay hold of the nipple.

DCIV. This is remedied by cutting the bridle with a pair of scissars.

DCV.

DCV. The tongue has been said to be inverted, so as to suffocate the child ; and this to have been remedied by tickling the throat to excite vomiting.

DCVI. The rectum is in some instances closed by a thin membrane ; in others, the gut is impervious.

DCVII. These are known by the want of stools, and by inspection of the parts.

DCVIII. The indications of cure are to make an opening as speedily as possible, and to preserve the passage pervious. But in the second case, there is often no possibility with safety to plunge any instrument so deep as to reach the unclosed part of the intestine, and the child must unavoidably perish.

DCIX. The urethra is sometimes closed in a similar manner in the males, and by the hymen in females.

DCX. These are known in the same way, and cured by similar surgical operations.

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DCXI. When there is no passage in the urethra through the whole or greatest part of the extent, a cure need not be expected, the only thing that can be done by art is to protract a miserable existence by means of an artificial opening made into the bladder.

DCXII. The passage in the urethra is sometimes choaked with slime, which may be removed by warm bathing, or the introduction of a probe.

DISEASES OCCASIONED BY DELIVERY.

DCXIII. When the pelvis of the mother is narrow, the bones of the head sometimes fold over each other, forming a cone, and the scalp swells out into a great tumor. In this case, mostly no assistance is requisite, as in time it will do very well, by leaving the head lax and easy without any bandage. But if convulsions, or other symptoms of a compressed brain come on, the indications of cure are,
1. To empty the blood-vessels, by allowing the navel-string to bleed, or by taking
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ing two ounces from the jugular vein.
 2. To make a revulsion by purgatives, suppositories, or clysters. 3. To abate the inflammation of the scalp by emollient ointments, embrocations, or poultices.
 4. When any matter is formed, to give it vent by a proper incision.

DCXIV. When any bruises happen from the use of the forceps, or blunt-hook, there is a black mark to be perceived, sometimes resembling the stroke of a whip. The indications of cure are,
 1. To promote a revulsion by poultices and fomentations. 2. If matter forms, to give it free vent.

DCXV. The face, nose, lips, tongue, and eyes, are often inflamed and swelled, in presentations of the face, from injudicious fingering; and in breech cases the genitals are exposed to the same hazard.

DCXVI. These are best treated by emollient poultices and fomentations, or sometimes by solutions of lead, or other astringents.

DCXVII.

DCXVII. From too great force being used in delivery, inattention, or ignorance, a fracture of some of the extremities may happen. As this accident may likewise happen afterwards through the fault of the nurse, it is always proper carefully to examine the limbs, that the operator may not be blamed for the delinquencies of others.

DCXVIII. This is to be treated by the known rules of surgery, and, perhaps, requires more attention than in adults, from the child's frequent moving, and being incapable of obeying directions.

DCXIX. A dislocation, especially of the humerus, sometimes happens from the same causes, which is to be treated in a similar manner.

DISEASES SUBSEQUENT TO DELIVERY.

DCXX. On the separation of the fragment of the umbilical chord, an ulceration, or rawness sometimes succeeds, which may be treated with gentle astringents, or saturnine washes.

DCXXI.

DCXXI. Ruptures happen in the groin or scrotum of boys, or at the navel in either sex.

DCXXII. These are seldom attended with danger, and require little management except keeping the belly gently open, and supporting the part with the hand when the child cries.

DCXXIII. The red gum is a rash which appears, soon after birth, over the whole body; it is attended with so little inconvenience as scarcely to merit the name of a disorder; attention to the state of the belly, and moderating the warmth of the room are solely required.

DCXXIV. There is a species of jaundice called by some the yellow gum, which frequently proves fatal to children. This requires vomits, laxatives, soap, and in general the same treatment as in adults, and also a change of milk.

DCXXV. Nausea and vomiting are frequent with infants, but mostly of short duration, they are taken off by a little brandy

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brandy punch, oil of aniseeds on sugar, or by a gentle emetic, followed by an opiate.

DCXXVI. Gripes and colic are more troublesome, and may be known by the suddenness of the attack, violent fits of crying, and by the child pulling up its legs toward the belly.

DCXXVII. The indications of cure are to remove the offending cause by laxatives, as rhubarb, or magnesia, and to quiet the irritability of the system by a few drops of laudanum joined to something strengthening and carminative, or by the warm bath.

DCXXVIII. A purging often arises from an acidity in the primæ viæ, this may be known by four smelling green stools, a sour breath, and throwing up curdled milk.

DCXXIX. A proper regulation of the nurse's diet is of great importance in most diseases of infants; in this therefore the nurse should increase her quantity of animal food; and absorbents should be
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administered to the child, as magnesia; or, if it be much purged, chalk, or crab's claws, with a gentle opiate added to it, or given in a starch glyster.

DCXXX. The thrush is a disease of considerable importance, both as very tedious, and baffling the most judicious treatment.

DCXXXI. The symptoms are great lowness and dejection of strength, feebleness of pulse, and coldness of the extremities; afterwards small white spots appear on the tongue and fauces, the pulse and fever rising, with great restlessness and difficulty of sucking. The spots now become yellowish, with red inflamed interstices, and the mouth bleeds largely. In the worst cases, the spots cover the whole fauces, and become purplish, livid, and even black, a violent vomiting or purging with fits occur, and the child becomes unable to swallow.

DCXXXII. The thrush being an internal as well as external disorder, the removal

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removal of the appearances in the mouth is not sufficient for its cure. Gentle laxatives and absorbents should be given, for which purpose magnesia seems well adapted. If there be a violent purging, crab's eyes, with a few drops of laudanum, are proper to check it; or in case of sickness and nausea, a little ipecacoanha, or its wine. If there be any suspicion of the milk, it should be changed. If the child quits sucking, nourishing clysters have been recommended, and the application of blisters. As to washes in the first stage, a little cream, or gum Arabic dissolved in water, may be used; and when the disease is farther advanced, red wine, mixed with more or less water, or at the utmost rob of elder, honey of roses, or decoction of the bark, gently acidulated with spirit of vitriol. More detergent washes, or scraping the parts, should be totally avoided.

T H E E N D.



